**Attachment 1**

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# Shoreline Wildlife Management Plan

Prepared for:

Shoreline Division
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**With Contributions from**
**Mountain View City Council**
**Mountain View Parks and Recreation Commission**
**And Other City Staff**

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# Section 1. Introduction

The Mountain View City Council approved the preparation of the Shoreline Wildlife Management Plan (Plan) as part of the Strategic Roadmap Action Plan, which was adopted on June 22, 2021. The Strategic Roadmap Action Plan outlines a multi-year work plan to accomplish the City's highest priorities, one of which includes increasing and maintaining biodiversity in the City, including the Shoreline at Mountain View (Shoreline) area. The Plan assists in meeting that goal by describing the state and federal regulatory framework and policies within which the City works to protect native and special-status wildlife species; identifying opportunities and constraints regarding the management and enhancement of all protected wildlife species and their habitats; and describing protocols and procedures to achieve these goals as part of the City's vision to increase and maintain biodiversity in balance with the responsible recreational opportunities that Shoreline provides and the landfill and infrastructure maintenance that occur at Shoreline.

## 1.1 Management Area

The Plan's management area (Plan Area) encompasses approximately 750 acres (ac) in the Shoreline area of Mountain View, Santa Clara County, California (Figure 1). The Plan Area consists primarily of the Shoreline wildlife refuge and recreation area, bordered to the north by former salt evaporation ponds A1 and A2W; to the west and southwest by the Intuit campus and Garcia Avenue; to the south by Amphitheatre Parkway; to the southeast by Crittenden Lane and the Google campus; and to the east by the Stevens Creek Trail. Shoreline offers a network of approximately 8 miles (mi) of hiking, jogging, and bike trails, an 18-hole golf course, a kite flying lot, and an artificial 47-ac lake (Shoreline Lake) used for kayaking, sailing, and wind surfing. Specific areas within Shoreline that are part of the Plan's management goals include Coast Casey Forebay and Shoreline Lake in the northwest; Mountain View Tidal Marsh in the north-central part of the Plan Area; Vista Slope in the south-central part of the Plan Area, and the Northeast Meadowlands and kite flying lot in the east; the Stevens Creek Tidal Marsh in the northeast; and Crittenden Hill in the southeast. A 0.3-ac island within Charleston Slough is also included in the Plan Area.

Two other areas important to wildlife outside of Shoreline, but within the North Bayshore area of Mountain View, have been included as part of the Plan Area due to their high wildlife habitat value. They are: 1) the 13-ac Charleston Retention Basin located east of North Shoreline Boulevard, between Stierlin Court to the north and Charleston Road to the south; and 2) the 0.6-ac egret/heron rookery located within a row of London planetrees (*Platanus* × *acerifolia* var.) directly east of Shorebird Way on Google's Charleston Campus. The Charleston Retention Basin is a recently restored wetland/riparian habitat complex that provides valuable habitat for a variety of wildlife species, and the egret/heron rookery provides an important nesting area for great egrets (*Ardea alba*), snowy egrets (*Egretta thula*), and black-crowned night herons (*Nycticorax nycticorax*). Although both areas are separated from the main Shoreline area, both provide important habitat for wildlife in an otherwise largely developed environment. Figure 1 shows the boundaries of the Plan Area.


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H. T. HARVEY & ASSOCIATES
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**Figure 1. Plan Management Area**
Shoreline Wildlife Management Plan
January 2023

## 1.2 Background, Purpose, and Goals of the Plan

As described above, the Plan was approved for preparation by the City Council as part of the Strategic Roadmap Action Plan. The City established an overall goal of preserving and increasing biodiversity in the City. The Plan will contribute to that goal by focusing on the wildlife species and their habitats found within the Plan Area.

The Plan will serve two primary purposes. First, it will review and consolidate the various state and federal regulations and codes that govern native and special-status species wildlife and their habitats in the Plan Area. Second, the Plan will provide recommendations for best practices for habitat management to be applied through maintenance operations and potential projects to benefit wildlife and their habitats.

The Plan is intended to describe how various parts of the Plan Area will be managed for wildlife by creating and maintaining a mosaic of habitats, focusing on the enhancement and management of important focal ecosystems and habitat areas, and providing wildlife corridors to link those habitat areas.

**Biodiversity at Shoreline**

California is a global biodiversity hotspot and is home to more diverse ecosystems and wildlife species than anywhere else in North America (CDFW 2022a). The San Francisco Bay area in particular hosts more than 97 special-status wildlife species, many of which are endemic to the region. The South Bay area, which includes the City of Mountain View, supports a mosaic of diverse habitats that many common and special-status wildlife species depend upon for breeding, foraging, and refugia. For example, the unique salt marsh ecosystems at the margins of the Bay host several state and federally listed wildlife species such as the California Ridgway's rail (*Rallus obsoletus obsoletus*) and salt marsh harvest mouse (*Reithrodontomys raviventris*). The South Bay is recognized as an Important Bird Area (National Audubon Society 2022) due to its critical importance as a migration and wintering area for shorebirds, waterfowl, and other waterbirds along the Pacific Flyway. Habitats in the Plan Area support at least 23 special-status species, attesting to the rich biodiversity here. Biodiversity provides many benefits not only for natural ecosystem functions, but also for the economy and people within a region, which includes carbon sequestration, crop pollination, soil fertility, tourism and recreation (CDFW 2022b). As biodiversity is lost, not only do species and genetic diversity disappear, but the benefits created by stable ecosystems with rich biodiversity decrease as well. Loss of biodiversity may make ecosystems less stable and less resilient to stressors such as climate change and sea level rise.

The City has recognized the importance of maintaining and increasing, where feasible, the biodiversity that is found within its borders, especially at Shoreline and surrounding areas. As indicated by public comments provided during the City's public outreach regarding the Plan, biodiversity in the City is extremely important to the public and to multiple environmental advocacy organizations. Not only does the public recognize the economic and environmental benefits that are gained from a rich biodiversity, they also emphasize the personal enjoyment City residents and visitors obtain from observing wildlife in their natural habitats within the Plan Area and balancing this need with the recreational activities and infrastructure maintenance at Shoreline.

Although the Shoreline area is home to numerous wildlife species, the Plan will contribute to increasing and maintaining high biodiversity in the City by focusing on those species that, within the City, are found primarily or exclusively in the Shoreline area. These are the species for which Shoreline contributes substantially not only to biodiversity within the City, but also within the larger South Bay region. Although the Plan will result in the management of Shoreline for large numbers of wildlife species, its primary importance to the City's (and the region's) biodiversity will be maintaining habitats, populations, and species that are not present elsewhere in Mountain View.

One of the wildlife species that, within the City, is unique to Shoreline is the burrowing owl (*Athene cunicularia*). Although the City's burrowing owl management areas are located entirely within Shoreline, the Plan does not address specific burrowing owl management in these areas, which is covered by the Shoreline Burrowing Owl Preservation Plan (Trulio and Higgins 2012). Recognizing the importance of Shoreline's burrowing owls to the imperiled South Bay population of this species, the Shoreline Wildlife Management Plan has been prepared to avoid conflicts with the Shoreline Burrowing Owl Preservation Plan. Thus, the Shoreline Wildlife Management Plan describes how Plan activities relate to the Shoreline Burrowing Owl Preservation Plan and focuses on the unique species and habitats that make Shoreline special while not repeating management goals already addressed in the burrowing owl plan.

**Landfill and Existing Infrastructure Challenges**

Shoreline is built on a landfill that was closed in 1996 and is subject to a number of federal, state, and local regulations (Trulio and Higgins 2012). The landfill regularly settles, creating cracks within the landfill cap that may allow intrusion by water, which can then mix with the underlying waste and release toxic gases and leachate (Trulio and Higgins 2012). To prevent this from happening, regular maintenance of the landfill is required year-round. There are approximately 544 ac of landfill cells located within Shoreline, with a vast network of landfill gas pipes that remove gases such as methane from the buried mounds of waste and pump it to nearby areas, where it is used by certain buildings for power. Most landfill pipes, cells, and gas wells occur in areas managed for burrowing owl habitat in the Northeast Meadowlands, Vista Slope, and the golf course (Trulio and Higgins 2012). Large areas of grassland/upland habitat are subjected to landfill maintenance. The Northeast Meadowlands landfill cells require frequent earthwork activity; in contrast, the Vista Slope and golf course areas do not require frequent earthwork operations, though they do need occasional maintenance. The 2012 Shoreline Burrowing Owl Preservation Plan (Trulio and Higgins 2012) was adopted by the City, in part, to provide a management and regulatory guide to protecting and enhancing burrowing owl habitat, while at the same time allowing required landfill operations to prevent the escape of toxic gases, waste, and leachate into the environment from the capped landfill.

Shoreline Park also contains public infrastructure such as roads, bridges, and utilities that does not require the level of maintenance of the landfill, but does require routine monitoring and occasional repairs. For instance, the various facilities within Shoreline discussed in Section 3.8 require infrastructure such as water, sewer, and storm systems that are located within roadways throughout the park. In addition, most of the City's sewage is conveyed via pipelines to the Sewage Pump Station located within Shoreline where the wastewater is then

pumped to the Palo Alto Regional Water Quality Control Plant for treatment. Stormwater from throughout the City is conveyed through storm drain systems, as well as Stevens Creek and Permanente Creek, through Shoreline before eventual discharge to San Francisco Bay. Within the Park, the Coast Casey Forebay collects about 25% of the City stormwater before being pumped from the Coast Casey pump station for discharge to the Palo Alto Flood Basin. The Crittenden Storm Pump Station is located at the eastern end of Shoreline and collects stormwater from the North Bayshore area for discharge to Stevens Creek. Shoreline Park and Shoreline Links are irrigated with mostly recycled water that is transported via pipelines from the Palo Alto treatment plant. In addition, Public Works manages the water system for the Sailing Lake which receives water from Charleston Slough, where tide gates are present to manage water flow. Water from Charleston Slough is pumped from the Sailing Lake Pump Station to the Sailing Lake. The lake contains aeration systems and a weir gate at one end to allow water to flow out of the lake for circulation and maintain the quality of the lake water. While these systems and infrastructure do not require the frequent earthwork to maintain, they do require upkeep and occasional repairs that may require excavation to address.

## 1.3 Nearby Habitat Restoration/Management Efforts

As an integral component of the many habitats and facilities that make the South Bay so important to biodiversity, the Plan Area is located immediately adjacent to several areas where other habitat restoration and management efforts have been implemented or are planned. Such efforts include:

- Charleston Slough Wetland Mitigation Project – In 1980, the City of Mountain View acquired ownership of the inner portion of Charleston Slough, a tidal wetland complex located just northwest of the Plan Area. Due to prior separation of the inner and outer portions of Charleston Slough and installation of a culvert (by others) that muted the tidal exchange between the two portions of the Slough, habitat conditions within the inner portion changed from tidal marsh to mudflat. As a condition of a San Francisco Bay Conservation and Development Commission (BCDC) permit for the installation of a water control gate that was intended to ameliorate these adverse habitat conditions, the City was required to restore 53 acres of tidal marsh habitat. The marsh vegetation did not recover as hoped, so in 1996, the City began implementing a restoration plan in accordance with BCDC permit conditions (Hydroikos Ltd. 2007). The City continues to monitor Charleston Slough and is developing a plan to implement additional short term and long term improvements to Charleston Slough, with the goals to increase tidal marsh establishment while continue to maintain the City's habitat restoration, water supply, and flood management objectives. The Shoreline Wildlife Management Plan includes management and enhancement of an island in Charleston Slough, as well as management activities at Coast Casey Forebay, immediately adjacent to Charleston Slough.
- South Bay Salt Pond Restoration Project (SBSPRP) – The SBSPRP, a joint project of the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and California State Coastal Conservancy, is restoring 15,100 ac of former industrial salt ponds in the South Bay to a mosaic of tidal wetlands, tidal aquatic habitats, and managed ponds. These ponds were acquired by federal and state resource agencies, with funding from private foundations, in 2003. Programmatic environmental review and permitting for the 50-year project were completed by 2009, and Phase 1 of the project was

initiated that year. Phase 2 includes activities in 2,400 acres, including Ponds A1 and A2W, immediately north of Shoreline, in Mountain View. The SBSPRP intends to restore tidal habitats in those two ponds by breaching outboard levees. Fill will be placed along the southern edges of those ponds, adjacent to Shoreline, to provide intertidal habitat, high marsh, and upland transition zone habitat (USFWS and California State Coastal Conservancy 2016). Permanente Creek, which flows through the Shoreline Wildlife Management Plan Area, continues northward between Ponds A1 and A2 W, and Plan management and enhancement activities in the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh are intended to complement the tidal restoration activities being performed by the SBSPRP in Ponds A1 and A2W.

- U.S. Army Corps of Engineers South San Francisco Bay Shoreline Project (Shoreline Project) – The U.S. Army Corps of Engineers (USACE) has been conducting a flood risk management and ecosystem restoration study for the South San Francisco Bay with the objectives of reducing the risk to public health, human safety, and the environment due to tidal flooding along the South Bay shoreline in Santa Clara County; reducing potential economic damages due to tidal flooding in these areas; increasing contiguous tidal marsh to restore ecological function and habitat quantity, quality, and connectivity in the South Bay; and providing opportunities for public access, environmental education, and recreation. In conjunction with its local partner the Santa Clara Valley Water District (Valley Water), the USACE began construction on Phase I of the Project in Alviso in 2021. The USACE and Valley Water are currently studying alternatives to extend Shoreline Project activities northward from the Alviso Area through Sunnyvale and Mountain View to Palo Alto. Thus, the Shoreline Project, in conjunction with the SBSPRP and possibly other projects, is expected to implement flood management, tidal habitat restoration, and public access in baylands areas adjacent to the Shoreline Wildlife Management Plan Area in the future.
- Strategy to Advance Flood Protection, Ecosystems, and Recreation along San Francisco Bay (SAFER Bay) – Under the SAFER Bay project, the San Francisquito Creek Joint Powers Authority (SFCJPA) is investigating flood management, tidal habitat restoration, and public access along the edge of baylands areas from Palo Alto north through East Palo Alto and Menlo Park to Redwood City. Although Phase 1 of the project focuses on areas within San Mateo County, a 2019 Draft Feasibility Report (SFCJPA 2019) described potential activities that could be performed at the Palo Alto Flood Control Basin, located immediately northwest of Coast Casey Forebay and adjacent to Charleston Slough. Those activities could be implemented in the future.
- North Bayshore Precise Plan (NBPP) – In 2017, the City of Mountain View adopted the updated NBPP to implement the 2030 General Plan's policy direction for the North Bayshore Area. The NBPP includes a number of restrictions on future development activities in and adjacent to sensitive habitats, such as burrowing owl habitat, creeks, riparian and wetland habitats, and the egret/heron rookery, and provides guidelines for future development to enhance habitat conditions (City of Mountain View 2017). Although the Shoreline area was excluded from the NBPP, the NBPP did include protection measures specific to the Charleston Retention Basin and egret/heron rookery.

The Shoreline Wildlife Management Plan is intended to dovetail with and complement these adjacent projects to the extent feasible. Thus, the Plan does not include elements that conflict with adjacent projects, and where feasible, the Plan incorporates habitat management activities that will achieve synergy with adjacent projects to enhance the benefits of all these conservation efforts to biodiversity, above and beyond what could be achieved by each project alone.

## 1.4 Plan Overview

### 1.4.1 Umbrella Special-Status Species and Their Habitats

The Plan focuses on five special-status wildlife species and their habitats: 1) the California Ridgway's rail and tidal marsh/mudflat habitat, 2) black skimmer (*Rhynchops niger*) and island nesting habitat and the surrounding nontidal saltwater lake, 3) white-tailed kite (*Elanus leucurus*) and tree nesting habitat and grassland foraging habitat, 4) San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) and riparian, nontidal freshwater pond and wetland, and nontidal brackish marsh habitat, and 5) monarch butterfly (*Danaus plexippus*) and grasslands, landscaped areas, and other habitat types where the species' larval host plants and nectar sources occur. Although many other special-status animal species occur at Shoreline, these five species serve as "umbrella" species for the entire suite of special-status and other native wildlife species using Shoreline in that the habitat associations of these umbrella species cover all the important habitats in the Plan Area, and therefore the other wildlife species using those habitats.

For example, tidal marsh and upland transition habitat of the California Ridgway's rail is also used by other special-status species, including the salt marsh harvest mouse, salt marsh wandering shrew (*Sorex vagrans halicoetes*), northern harrier (*Circus hudsonius*), and Alameda song sparrow (*Melospiza melodia pusillula*), as well as a number of common wildlife species. The Shoreline Lake island that provides nesting habitat for the black skimmer is also used by nesting Forster's terns (*Sterna forsteri*), American avocets (*Recurvirostra americana*), and black-necked stilts (*Himantopus mexicanus*), and as a roosting site for the American white pelican (*Pelecanus erythrorhynchos*) and California brown pelican (*Pelecanus occidentalis californicus*); Shoreline Lake itself, which is used as foraging habitat for the black skimmer, is also used by numerous other waterbirds as foraging and roosting habitat. Trees furnishing nesting habitat for the white-tailed kite also provide nesting sites for common, native raptors such as Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and great horned owl (*Bubo virginianus*), as well as numerous other birds; open grassland used for foraging by the white-tailed kite is also used by a variety of grassland birds. Marsh nesting and foraging habitat of the San Francisco common yellowthroat provides suitable habitat for the Alameda song sparrow (*Melospiza melodia pusillula*) and other birds, and the ponds where yellowthroats occur also provide habitat for the northwestern pond turtle (*Actinemys marmorata*)[1], as well as common, native amphibians such as the Pacific

[1] The western pond turtle was recently split into two species, the northwestern pond turtle (*Actinemys marmorata*) and southwestern pond turtle (*Actinemys pallida*). Studies are being performed to determine the distributions of these two species, but preliminary results suggest that turtles occurring in most of Santa Clara County, including the Mountain View area, are likely northwestern pond turtles or hybrids between the two species.

treefrog (*Pseudacris regilla*) and western toad (*Anaxyrus boreas*). Finally, the larval host plant (milkweed [*Asclepias* sp.] and flowers providing nectar for the monarch butterfly are used by a variety of other butterflies, bees, and other insects, as well as foraging sites for Anna's hummingbird (*Calypte anna*).

### 1.4.2 Buffer Zones

Buffer zones often consist of native plantings that have a dual function: providing habitat benefits in terms of food and cover and creating a physical barrier to discourage human access into sensitive areas. Buffer zones also include areas between sensitive habitats and areas of high human activity, such as areas where large numbers of people or high noise areas, occur. Whether or not these latter buffer zones are vegetated specifically for wildlife, having broader buffers between sensitive habitats/species and sources of disturbance minimizes the effects of human activities on sensitive habitats and species. Such sensitive areas include wetlands (creeks, ponds, and tidal areas) and burrowing owl nesting areas.

### 1.4.3 Wildlife Corridors

Wildlife corridors are areas that connect two or more patches of habitat for a given species and that allow the safe movement of wildlife through otherwise unsuitable habitat. Wildlife corridors provide appropriate cover (e.g., from predators, and to make dispersing animals feel safe from nearby human activity) and appropriate conditions for movement, without impediments that would preclude animals from moving along the corridors. Movement corridors are especially important for allowing mammals (e.g., gray fox [*Urocyon cinereoargenteus*]), reptiles, amphibians, invertebrates, and less mobile birds (such as the San Francisco common yellowthroat) to move from one location or habitat area to another.

### 1.4.4 Management and Educational Guidelines

The Plan includes management and educational guidelines to focus habitat protection and enhancement on umbrella species/habitats and to preserve wildlife habitat values while optimizing public use. Environmental guidelines will be included in Standard Operating Procedures (SOP) for maintenance, staff, contractors, and other parties performing work at Shoreline (such as PG&E and other utility companies) to ensure compliance with all state and federal codes and requirements. The Plan includes quick reference guides to facilitate simple and easy implementation of maintenance work while adhering to environmental requirements.

### 1.4.5 Monitoring and Adaptive Management

The Plan describes monitoring for special-status species and their habitats, procedures for evaluating whether management activities need to be modified to achieve the desired results, and identifying and implementing adaptive management measures that will be performed as necessary to protect and enhance sensitive habitats and species.

### 1.4.6 Annual Reporting

The Plan includes an outline for an annual summary report to be administered by a City-designated biologist with an overview of environmental accomplishments and necessary steps for achieving goals moving forward, using a standard adaptive management approach.

### 1.4.7 Plan Review and Revision

The Plan describes how the City will periodically review, and revise if necessary, habitat management and related park maintenance policies, practices, rules, and regulations to ensure that they continue to conserve umbrella species and wildlife habitat values while optimizing public use.

# Section 2. Regulatory Framework

This section outlines the relevant state and federal regulations that apply to the special-status species and sensitive ecosystems and habitats found within the Plan Area.

## 2.1 Federal Regulations

### 2.1.1 Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all nests of protected bird species whether they are active or inactive. An *active* nest is defined as having eggs or young, as described by the USFWS in its June 14, 2018 memorandum "Destruction and Relocation of Migratory Bird Nest Contents". Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

In recent years, there have been changes to how the MBTA is implemented and enforced with respect to incidental take of protected birds. However, on October 4, 2021, the USFWS published a final rule revoking a January 7, 2021 regulation that limited the scope of the MBTA. The final rule went into effect on December 3, 2021. With this final and formal revocation of the January 7, 2021 rule, the USFWS returns to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent.

Plan Applicability: Virtually all native bird species that occur in the Plan Area are protected under the MBTA.

### 2.1.2 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects federally listed wildlife species from harm or *take*, which is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." *Take* can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as *take* even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under the FESA only if they occur on federal lands.

The USFWS and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened, and endangered species under FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under FESA, but may become listed in the near future and are often included in their review of a project.

Plan Applicability: The federally listed California Ridgway's rail and salt marsh harvest mouse may occur in the Plan Area where salt marsh habitats are found, such as in Steven's Creek and Mountain View Tidal Marsh areas. The federally listed California least tern (*Sternula antillarum browni*) may occur as an infrequent forager during the post-breeding season over open water habitats, such as the Shoreline Sailing Lake, and in adjacent managed salt ponds and Charleston Slough, located north of Shoreline.

## 2.2 State Regulations

### 2.2.1 California Fish and Game Code

Certain sections of the California Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code. California Fish and Game Code Sections 3503, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered *take* by the CDFW. Raptors (e.g., eagles, hawks, and owls) and their nests are specifically protected in California under Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Non-game mammals are protected by California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals or disturbance that causes the loss of reproductive effort may be considered *take* by the CDFW.

Fully protected birds and mammals are protected by California Fish and Game Code Section 3511 and 4700, respectively, which states that no provision of these codes or any other laws shall be construed to authorize the issuance of a permit or license to take a fully protected bird or mammal, and no permit or license previously issued shall have any force or effect for that purpose. However, the department may authorize the taking of a fully protected bird or mammal for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species

Plan Applicability: Native birds, mammals, and other wildlife species that occur in the Plan Area are protected under the California Fish and Game Code. The Plan includes pre-activity surveys and buffers around active bird nests to avoid impacting birds protected by the Fish and Game Code. Nine species designated by the Fish and Game Code as fully protected species occur at Shoreline; these are the California Ridgway's rail, California black rail (*Laterallus jamaicensis coturniculus*), California least tern, California brown pelican, white-tailed kite, bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), American peregrine falcon (*Falco peregrinus anatum*), and salt marsh harvest mouse.

### 2.2.2 California Environmental Quality Act

CEQA is a state law that requires state and local agencies to document and consider the environmental implications of their actions and to refrain from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects. CEQA requires the full disclosure of the environmental effects of agency actions, such as approval of a general plan update or the projects covered by that plan, on resources such as air quality, water quality, cultural resources, and biological resources. The State Resources Agency promulgated guidelines for implementing CEQA known as the State CEQA Guidelines.

Section 15380(b) of the State CEQA Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in the FESA and the CESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists". Species on these lists are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review as potential rare species, but do not have specific statutory protection. All potentially rare or sensitive species, or habitats capable of supporting rare species, are considered for environmental review per the CEQA Section 15380(b).

Plan Applicability: Prior to performing larger projects that may impact special-status species and sensitive habitats, the City of Mountain View performs a CEQA analysis of those projects to identify impacts on sensitive biological resources and mitigation measures that are necessary to avoid significant impacts. Adoption and implementation of the Shoreline Wildlife Management Plan is not considered a "project" that will require CEQA assessment because most elements of the Plan are already being performed as part of Shoreline management and maintenance, and because discrete habitat enhancement projects (e.g., those identified in Section 8.3 of the Plan) will undergo project-specific City review as needed to determine the nature and extent of any necessary CEQA evaluation. This Plan is intended to be self-mitigating in that its implementation will result in a net benefit to special-status wildlife and their habitats at Shoreline, rather than resulting in adverse effects.

### 2.2.3 California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code, Chapter 1.5, Sections 2050-2116) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with CESA, the CDFW has jurisdiction over state-listed species (Fish and Game

Code 2070). The CDFW regulates activities that may result in *take* of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of *take* under the California Fish and Game Code. The CDFW, however, has interpreted *take* to include the "killing of a member of a species which is the proximate result of habitat modification."

Plan Applicability: State-listed species occurring within the Plan Area include the California Ridgway's rail, California black rail, California least tern, bald eagle, willow flycatcher (*Empidonax traillii*), bank swallow (*Riparia riparia*), tricolored blackbird (*Agelaius tricolor*), and salt marsh harvest mouse.

## 2.3 City of Mountain View Policies and Procedures

### 2.3.1 Mountain View 2030 General Plan Policies

The City of Mountain View's 2030 General Plan includes a number of policies that pertain to the protection and sustainable management of the unique species, habitats, and other biological resources that are found within the City.

- **Goal LUD-15** of Chapter 3 – Land Use and Design, includes the following policy that supports an area which is a model of highly sustainable and innovative development, and that is protective of the natural and biological assets of the area:
    - LUD 15.4: Wildlife friendly development. Implement wildlife friendly site planning, building and design strategies.
- **Goal LUD-16** of Chapter 3 is to support a diverse area of complimentary land uses and open space resources, with the following policy that is applicable to wildlife:
    - LUD 16.1: Protected open space. Protect and enhance open space and habitat in North Bayshore.
- **Goal LUD-18** of Chapter 3 addresses creating a comprehensive strategy for reducing the effects of future sea-level rise through the following policies:
    - LUD 18.1: Collaboration on sea-level rise impacts. Collaborate with regional, state and federal agencies to address the effects of potential rises in sea levels through assessing vulnerabilities and creating adaptation strategies.
    - LUD 18.2: Flood retention areas. Plan for the development of flood retention areas to address effects from sea-level rise.
- Under **Chapter 5 – Infrastructure and Conservation** of the General Plan:
    - **Habitat and species protection**. The General Plan's coordinated strategy for protecting special habitat and species includes conservation, active land management and maintenance and coordination with other governmental agencies. This will support a healthy, diverse and sustainable local ecosystem.
- **Goal INC-16** of Chapter 5, includes the following policies to protect and enhance rich and biologically diverse ecological resources within the City:

- INC 16.1: Natural areas. Work with regional agencies to protect and enhance natural areas.
- INC 16.2: Shoreline at Mountain View. Manage Shoreline at Mountain View Regional Park to balance the needs of recreational, open space, habitat, commercial and other uses.
- INC 16.3: Habitat. Protect and enhance nesting, foraging and other habitat for special-status species and other wildlife.
- INC 16.4: Invasive species. Contain and reduce the amount of invasive species.
- INC 16.5: Wetland habitat. Collaborate with and support regional efforts to restore and protect wetlands, creeks, tidal marshes and open-water habitats adjacent to San Francisco Bay.
- INC 16.6: Built environment habitat. Integrate biological resources, such as green roofs and native landscaping, into the built environment.

- **Goal POS-13** of Chapter 6 – Parks, Open Space and Community Facilities, includes the following policy which is to provide edible landscaping and foraging opportunities for wildlife within the City:
  - POS 13.3: Edible landscaping. Encourage edible landscaping plans for public and private developments.

### 2.3.2 Project Evaluations

The City evaluates all projects to be conducted at Shoreline with a Project Evaluation form as part of the current Shoreline Burrowing Owl/Wildlife Management Program. Section 12.1 outlines the guidelines and project information that is considered during Project Evaluations.

### 2.3.3 Burrowing Owl Preservation Plan

The 2012 Burrowing Owl Preservation Plan (Trulio and Higgins 2012) describes the goals and actions taken to preserve and increase the population of burrowing owls at Shoreline, using an adaptive management approach. The burrowing owl plan outlines six high-level burrowing owl population and habitat goals as well as 10 specific management actions to achieve those goals.

The Shoreline Wildlife Management Plan does not include any measures that would conflict with the burrowing owl plan. Rather, the Plan complements many of the specific goals and action items found in the burrowing owl plan, such as addressing the management and maintenance of grassland/upland habitats, maintaining healthy populations of California ground squirrels (*Otospermophilus beecheyi*), controlling nonnative and nuisance species, developing volunteer opportunities at Shoreline to assist with various conservation and monitoring programs, and reporting on the success of the Plan.

# Section 3. Shoreline Habitats and Wildlife Corridors

Nine general habitat types are present within the Plan Area: grassland (irrigated and non-irrigated); riparian; nontidal freshwater wetland; nontidal freshwater pond; nontidal saltwater lake; nontidal brackish water/marsh; tidal marsh/mudflat; island; and developed. The locations of these habitats are depicted on Figure 2. The following sections describe each habitat type in terms of its location within the Plan Area; its dominant plant and animal species; locations of wildlife corridors relative to each habitat; and recommendations for habitat management and enhancement.

## 3.1 Grassland

### 3.1.1 Locations within Plan Area

Grassland is the most widespread habitat type in the Plan Area. Irrigated grasslands are found primarily on the golf course; adjacent to Shoreline Lake; in parking strips, lawns, and landscaped areas; and within developed land cover types, such as the Rengstorff House area. These irrigated grasslands are dominated by nonnative cultivated grasses, such as perennial ryegrass (*Lolium* sp.), which is the main turf grass on the golf course. Irrigated grasslands are typically weed-free and are regularly mown and maintained. A variety of ornamental trees, shrubs, and groundcovers common to the region, such as holly oak (*Quercus ilex*), juniper bushes and trees (*Juniperus* sp.), and English ivy (*Hedera helix*), are found within and around the edges of irrigated grasslands.

The majority of grassland habitats are non-irrigated. These occur in the Northeast Meadowlands, Crittenden Hill, and Vista Slope areas; in the upland habitats at the upper margins of marsh and open water areas, such as around Coast Casey Forebay and the North Shore of Shoreline Lake; around the periphery of irrigated grasslands; and in other, scattered areas. The non-irrigated grasslands are dominated by a mixture of annual grasses, forbs, and invasive weeds including ripgut brome (*Bromus diandrus*), wild oats (*Avena fatua*), Italian ryegrass (*Festuca perennis*), black mustard (*Brassica nigra*), prickly lettuce (*Lactuca serriola*), fennel (*Foeniculum vulgare*), and bristly ox-tongue (*Helminthotheca echioides*). Small to medium shrubs, such as the native coyote brush (*Baccharis pilularis*) and toyon (*Heteromeles arbutifolia*), occur in the non-irrigated grasslands. Areas with more frequent disturbance, occupied by barren/ruderal areas, are part of this grassland habitat, such as in the kite flying area. In the North Shore area there are a number of native and nonnative trees that include blackwood acacia (*Acacia melanoxylon*), she-oak (*Casuarina* sp.), cajeput (*Melaleuca quinquenervia*), sycamore (*Platanus* sp.), weeping willow (*Salix babylonica*), Monterey cypress (*Hesperocyparis macrocarpa*), and redwood (*Sequoia sempervirens*) (City of Mountain View 2021).

### 3.1.2 Wildlife

Although grasslands typically lack the structural diversity necessary to support a high diversity of wildlife species, these habitats are used as foraging, burrowing, and nesting locations by a variety of species. Small mammals such as California ground squirrels and Botta's pocket gophers (*Thomomys bottae*) are common

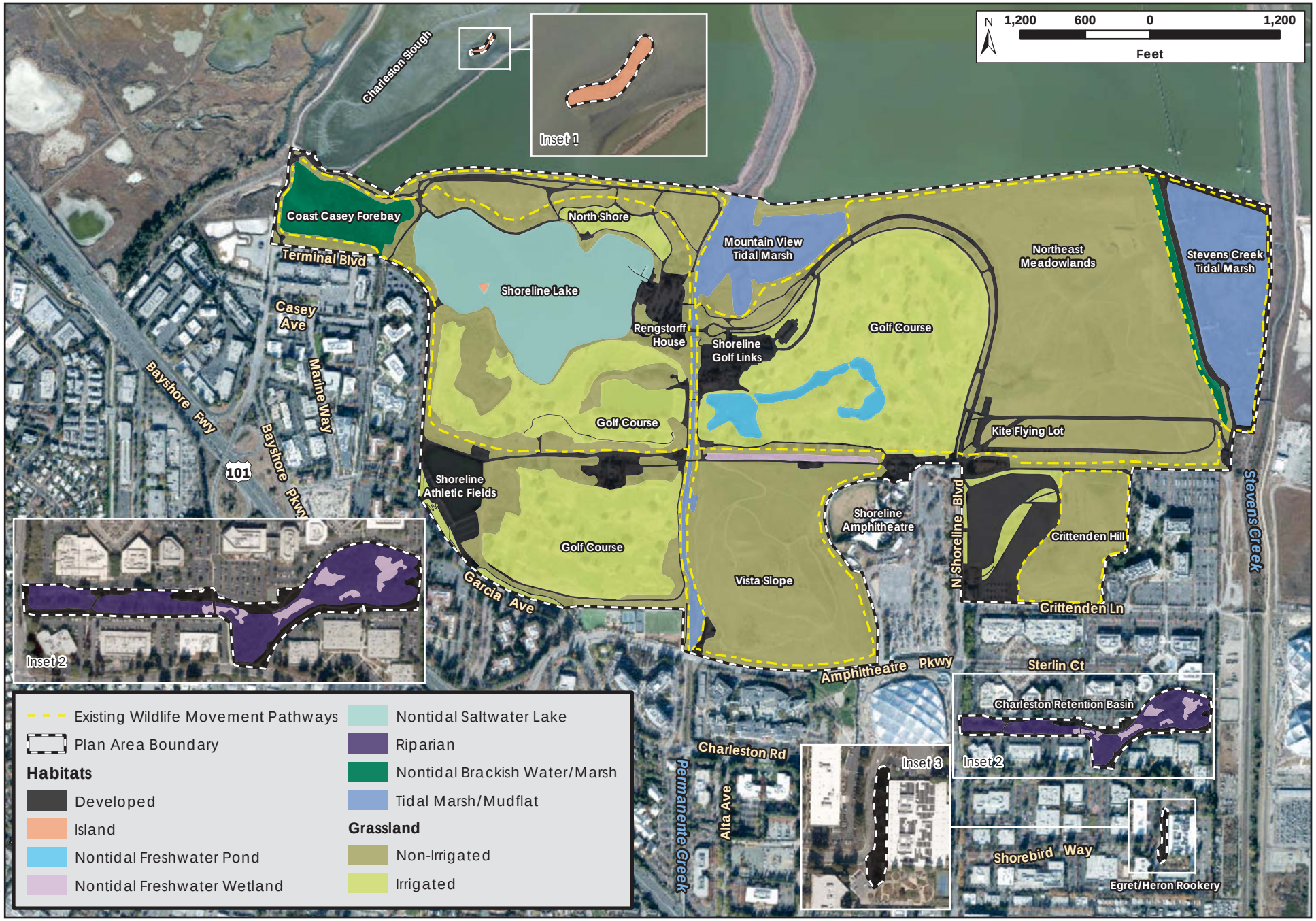


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**Figure 2. Plan Area Habitats and Wildlife Corridors**
Shoreline Wildlife Management Plan
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residents of both irrigated and non-irrigated grasslands, and burrows of these species can be found throughout the grassland habitats in the Plan Area. Ground squirrels in particular are important "ecosystem engineers", providing burrows that in turn furnish refugia for numerous other species, while also serving as important prey for a variety of predators. Deer mice (*Peromyscus maniculatus*), California voles (*Microtus californicus*), and black-tailed jackrabbits (*Lepus californicus*) are common throughout grassland habitats, and large predatory mammals such as the native gray fox, and occasionally the native coyote (*Canis latrans*) and nonnative red fox (*Vulpes vulpes*), hunt prey in all grassland portions of the Plan Area.

Common bird species that nest in nearby habitats forage within grassland areas during the nesting season, including the western bluebird (*Sialia mexicana*), tree swallow (*Tachycineta bicolor*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), and California scrub-jay (*Aphelocoma californica*). Raptors such as the red-tailed hawk, American kestrel (*Falco sparverius*), and red-shouldered hawk forage for small mammals and other prey within primarily non-irrigated grassland habitats throughout the Plan Area. The non-irrigated upland/grassland habitats where trees and shrubs (e.g., coyote brush) occur provide nesting habitat for a variety of common bird species including the California towhee (*Melozone crissalis*), northern mockingbird (*Mimus polyglottos*), and bushtit (*Psaltriparus minimus*). Numerous other bird species, including a variety of sparrows, warblers, and flycatchers, occur in trees and shrubs within the grassland areas, and many of them feed in the grasslands themselves, during migration and/or in winter.

Reptile species that regularly occur in both irrigated and non-irrigated grassland habitats in the Plan Area include the western fence lizard (*Sceloporus occidentalis*), southern alligator lizard (*Elgaria multicarinata*), and gopher snake (*Pituophis catenifer*). Burrows of ground squirrels and pocket gophers provide refugia for these reptile species, as well as for common amphibians such as the western toad and Pacific treefrog. A wide variety of butterflies, bees, wasps, and other invertebrates occur in grasslands; flowering plants in particular attract a number of species foraging for nectar and/or pollen.

**Special-Status Wildlife Use of Grassland Habitats**

Ground squirrel burrows in the non-irrigated grassland habitats of the Plan Area provide nesting and roosting sites for the burrowing owl, a California species of special concern, which is primarily found in the Northeast Meadowlands, the golf course, and Vista Slope areas. The state fully-protected white-tailed kite and golden eagle may occasionally forage over open areas of irrigated grassland habitats (e.g., the golf course); however, they primarily forage over the non-irrigated grassland habitats for small mammals and reptiles. Larger trees, both pine (*Pinus* sp.) and deciduous trees, in grassland habitats in Shoreline supported successful white-tailed kite nesting in 2018, 2019, and 2021. Although non-irrigated upland/grassland habitats provide open foraging habitat and suitable trees and shrubs for use by the loggerhead shrike (*Lanius ludovicianus*), a California species of special concern, this species has not occurred as a breeder in the Plan Area for years. Rather, loggerhead shrikes currently occur in grassland habitats in the Plan Area as occasional wintering foragers and transients. In addition, the monarch butterfly, a candidate for federal listing, occurs in grassland habitats where milkweed and other nectar plants occur.

### 3.1.3 Wildlife Corridors

Wildlife are dependent upon corridors having sufficient cover (e.g., shrubs, trees, tall grasses), and lacking barriers such as tall fences, busy roadways, and excessive human disturbance, while moving between habitat areas. The open grassland habitats in the Plan Area, such as the North Meadowlands and Vista Slope areas, do not provide cover in terms of shrubs and trees; however, where grasses are tall in these areas, they provide cover for smaller mammals such as black-tailed jackrabbits and rodents, amphibians such as Pacific treefrogs, and some birds to effectively move across the Plan Area. Larger mammals, such as the gray fox and black-tailed jackrabbit, take advantage of the upland/grassland habitats that support low-lying shrubs and trees that occur in the North Shore area and along the western side of Shoreline Lake. The periphery of the golf course, the service road that runs between Vista Slope and the golf course, and the grassy banks of Permanente Creek provide dense cover that many species of wildlife may use as they move within grassland habitats. These grassland habitat corridors provide connectivity between other important wildlife habitats that are found on either side of the Plan Area, such as the Palo Alto Baylands and Byxbee Park to the northwest, and Stevens Creek Shoreline and Crittenden Marsh to the east.

### 3.1.4 Management and Enhancement Recommendations

The 2012 Shoreline Burrowing Owl Preservation Plan (Trulio and Higgins 2012) outlines a number of management recommendations for grasslands in order to increase and enhance burrowing owl numbers and their habitat, including guidelines on mowing, landscaping, seeding for native plants, and increasing burrow availability for owls, to name a few. The Shoreline Burrowing Owl Preservation Plan focuses on burrowing owl preserve and mitigation areas, which are depicted on Figure 3. Therefore, the Shoreline Wildlife Management Plan does not repeat those management recommendations as they pertain to the burrowing owl preserve and mitigation areas. Rather, the following management and enhancement recommendations for grassland habitats focus on those areas that are not specifically targeted by the burrowing owl plan, which include the North Shore area; the ruderal and upland grassland areas surrounding Coast Casey Forebay, Mountain View Tidal Marsh, and Stevens Creek Tidal Marsh; and all other non-managed grasslands throughout the Plan Area, including portions of the Northeast Meadowlands, Vista Slope, and Crittenden Hill. Although the irrigated grasslands on the golf course are managed specifically for golfing, recommendations are also provided for these areas, related to the management of trees, shrubs, and other vegetation that provide wildlife habitat on the golf course. Specific maintenance guidelines pertaining to grasslands, including wildlife avoidance and minimization measures relating to grassland habitats, are provided in Sections 12.1 and 12.2. As a general rule, trees, shrubs, and other vegetation aside from turf grass in grassland habitats should not be trampled, cleared, or removed without a specific need or a Project Evaluation.

Wildlife-related management and enhancement recommendations for grassland are as follows:

- Protect existing trees and shrubs in grasslands and avoid trimming and/or removal if feasible. Trees and shrubs provide nesting, roosting, foraging, and cover habitat for numerous wildlife species.
- Allow some grassland areas to support tall grasses, forbs, and shrubs to the extent that fire safety allows. These areas support numerous invertebrates, small mammals, and reptiles, which in turn


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**Figure 3. Burrowing Owl Preserve-Mitigation Areas and Approximate Burrowing Owl Concentration Areas**

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provide prey for a variety of wildlife species. Taller grasses, forbs, and shrubs also provide nesting sites for birds and provide cover along wildlife corridors for dispersing wildlife species such as the gray fox, reptiles, and less-mobile bird species.

- Manage for certain invasive weeds by following guidelines as set forth in Section 7.1. However, time mowing events of invasive vegetation such as fennel, which is found in ruderal grassland areas, so as to avoid periods when patches of vegetation may be in use by birds during fall migration.
- Determine the timing of mowing activities, at least the initial mowing each year, by the height of vegetation, to prevent vegetation from becoming too tall to provide suitable burrowing owl habitat.
- All vegetation management in grassland areas will follow all applicable Project Evaluation guidelines and avoidance and minimization measures as outlined in Section 12.
- Comply with recommended no-disturbance buffer zones around active bird nests in grassland areas, as outlined below in Section 5.4 and Section 12.
- Install split-rail fencing in strategic locations bordering Crittenden Hill and Vista Slope, as well as along pathways, trails, roadways and other areas of Shoreline. This will assist in guiding people along the correct pathways and minimizing the creation of new pathways and trails in sensitive grassland habitat areas.

In addition, because Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), a special-status plant, occurs in several locations within grassland habitats at Shoreline, the following measures will be implemented to minimize impacts on this special-status plant during management activities:

- The Project Evaluation performed for projects at Shoreline, as described in Section 12, will determine whether an activity will be performed in an area known to be occupied by Congdon's tarplant. If so, the following measures will be implemented:
    - Mowing can help maintain suitable habitat conditions for Congdon's tarplant by suppressing the growth of invasive plants and can help spread tarplant seeds, but mowing can impair the health of individual tarplants, and mowing when the species is flowering may prevent seed set. Mowing in areas occupied by Congdon's tarplant will not occur March through July unless (a) the mower's height is set above the height of most tarplant individuals present at the time, or (b) mowing is performed with line trimmers to avoid impacts to individual tarplants.
    - Landscaping, intentional planting or seeding of other plant species, or alteration of hydrology (e.g., irrigation) will not occur in areas occupied by Congdon's tarplant.
    - If ground disturbance or other activities that will effectively destroy existing Congdon's tarplant occurrences is unavoidable (e.g., for landfill maintenance), a Biologist will identify appropriate mitigation via preparation, seeding, and management of another location at Shoreline to offset the impact to Congdon's tarplant in consultation with the California Department of Fish and Wildlife.

## 3.2 Riparian

### 3.2.1 Locations within Plan Area

Riparian habitat within the Plan Area occurs only in the Charleston Retention Basin, located outside of the Shoreline Park area on the Google Charleston Campus, east of North Shoreline Boulevard, between Stierlin Court to the north and Charleston Road to the south. The Charleston Retention Basin is supported by runoff from surrounding commercial areas and high groundwater, which supports wetland and riparian habitat. While this basin has long been dominated by such habitats, existing habitat conditions at the basin are the result of a habitat improvement project that expanded and enhanced a pre-existing nontidal freshwater wetland and expanded riparian woodland areas that surround the wetland (HTH 2017). The project also included the installation of two pedestrian bridges, the creation of an improved pedestrian path around the retention basin, and the removal of 134 parking spaces next to the retention basin to allow for habitat expansion and enhancement and to improve access to the path from adjacent parcels.

### 3.2.2 Vegetation

The riparian habitat within the Charleston Retention Basin is a mixed assemblage of mature and recently planted younger trees that include Fremont cottonwood (*Populus fremontii*), box elder (*Acer negundo*), coast live oak (*Quercus agrifolia*), elderberry (*Sambucus nigra*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*). The understory is composed of a variety of native species including California sagebrush (*Artemisia californica*), golden yarrow (*Eriophyllum confertiflorum*), hummingbird sage (*Salvia spathacea*), common snowberry (*Symphoricarpos albus*), coyote mint (*Monardella villosa*), and California fuchsia (*Epilobium canum*).

A box culvert on the western boundary of the Charleston Retention Basin delivers stormwater runoff from underneath North Shoreline Boulevard into a perennial stream in the basin, which is likely connected to a groundwater source as well (HTH 2015). This perennial stream, which represents the only nontidal creek habitat in the Plan Area, flows into the nontidal freshwater wetland and is conveyed to a pump station on the east end of the retention basin, where the water is then funneled to Stevens Creek, and ultimately drains into the San Francisco Bay. The perennial stream is mostly devoid of vegetation, but may be sparsely vegetated (<5 percent cover) in localized areas by species such as western coltsfoot (*Petasites frigidus* var. *palmatus*), common horsetail (*Equisetum arvense*), and other hydrophytic plant species.

### 3.2.3 Wildlife

Riparian habitats typically support high wildlife diversity because of the multilayered vegetation, presence of water, and abundance of invertebrate prey. Although the isolation of the basin from similar habitats in the region can limit the value of this habitat to wildlife species, the riparian habitat surrounding the Charleston Retention Basin provides the highest-quality breeding and foraging habitat for many songbirds in the Plan Area. Birds such as the chestnut-backed chickadee (*Poecile rufescens*), Nuttall's woodpecker (*Picoides nuttalli*), Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird, American robin (*Turdus migratorius*), lesser goldfinch, American goldfinch (*Spinus tristis*), and others nest in the willows, cottonwoods, and other trees here. In addition to

permanent resident and breeding birds, a number of migratory and wintering species occur in the riparian habitats, including species of warblers, vireos, flycatchers, and sparrows. During migration, willow and cottonwood trees provide high-quality foraging habitat for these migrants. Although many of these trees are deciduous, and thus provide poor cover in winter, they still support fairly large numbers of foraging birds during this season. Migrant songbirds, such as Wilson's warbler (*Cardellina pusilla*), orange-crowned warbler (*Oreothlypis celata*), western tanager (*Piranga ludoviciana*), Pacific-slope flycatcher (*Empidonax difficilis*), and warbling vireo (*Vireo gilvus*), forage on insects in trees and shrubs during spring and fall migration. Several other species, including the ruby-crowned kinglet (*Regulus calendula*), yellow-rumped warbler (*Setophaga coronata*), white-crowned sparrow (*Zonotrichia leucophrys*), and golden-crowned sparrow (*Zonotrichia atricapilla*), occur as both migrants and winter residents.

Reptiles such as the gopher snake, western fence lizard, and southern alligator lizard are present in this habitat. Amphibians such as the arboreal salamander (*Aneides lugubris*) occur in the leaf litter in this habitat, and the native Pacific treefrog is also known to be present.

Urban-adapted mammals, such as the native raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*), as well as the nonnative Virginia opossum (*Didelphis virginiana*), Norway rat (*Rattus norvegicus*), black rat (*Rattus rattus*), eastern gray squirrel (*Sciurus carolinensis*), and feral cat (*Felis catus*) reside in riparian habitat and adjacent habitats in the retention basin.

Aquatic invertebrates present in this habitat include notonectids (family Notonectidae), midge (family Chironomidae) larvae, and dragonfly and damselfly (order Odonata) larvae, and species such as seed shrimp (class Ostracoda) and clam shrimp (subclass Phyllopoda) also may be present. A wide variety of invertebrate species also occur throughout the terrestrial habitats at the Charleston Retention Basin, including butterflies, moths, dragonflies, damselflies, wasps, bees, and flies.

**Special-Status Wildlife Species Use of Riparian Habitats**

One bird species, the yellow warbler (*Setophaga petechia*), that is considered a California species of special concern when breeding uses the riparian habitats of the Charleston Retention Basin as a migratory stop-over site for foraging and cover during spring and fall migration, but it has not been recorded nesting at the retention basin. Similarly, the western red bat (*Lasiurus blossevillii*), also a California species of special concern, may occur as an occasional nonbreeding visitor to the riparian habitat, roosting in the foliage of trees and foraging over the basin, but this species does not breed in the vicinity and is not expected to occur regularly or in large numbers in the riparian habitat.

Bird species that are listed as threatened or endangered under the FESA and/or CESA are considered "special-status species" year-round even if they do not nest in the riparian habitats of the basin. The state endangered willow flycatcher (*Empidonax traillii*) and state threatened tricolored blackbird (*Agelaius tricolor*) may occur in the riparian habitat as occasional nonbreeding foragers, but are not known or expected to nest in the riparian habitat of the basin.

### 3.2.4 Wildlife Corridors

Riparian habitats can provide important movement corridors for a variety of wildlife species by providing suitable cover, water, and food resources, thus providing connectivity through a mosaic of suitable and unsuitable habitat types. Riparian corridors are particularly important for wildlife movement within urban areas, where riparian habitat may provide some of the least disturbed habitat available. For example, the Stevens Creek riparian corridor, located east of the Plan Area, connects upper reaches of Stevens Creek to the open waters of the San Francisco Bay. Thus, several fish, reptiles, and other common aquatic species use Stevens Creek as a movement corridor, and upland portions of the Stevens Creek riparian corridor, such as banks and levees, also provide a movement and dispersal corridor for terrestrial reptiles and mammals.

However, the perennial stream and riparian vegetation in the Charleston Retention Basin have no connectivity to any creek system in the region for aquatic wildlife species. Although the riparian habitats in the basin are not directly connected to other high-quality habitat areas, animals that are able to navigate through the developed areas surrounding the basin may use the riparian habitat for cover or foraging. Animals may also move between the Charleston Retention Basin and the Stevens Creek riparian corridor. Riparian habitat in the retention basin provides food and cover for a variety of migrant songbirds, and due to the location of the retention basin along the edge of the treeless Bay and associated baylands area, the vegetation within the riparian habitat provides important migratory bird stopover habitat for refueling and roosting during migration.

### 3.2.5 Management Recommendations

From 2017 to 2021, Google was primarily responsible for the monitoring and maintenance activities of the Charleston Retention Basin Habitat Improvement Project. Those activities included:

- Inspection and maintenance of Charleston Retention Basin infrastructure (i.e., bridges, pathways, benches, interpretive signs)
- Monitoring of tree, shrub, and plant survival, establishment of wetland vegetation, and invasive plant cover
- Dead tree and plant replacement, and control of invasive weed species
- Temporary irrigation
- Trash and debris removal

Primary management responsibility for the Charleston Retention Basin was transferred to the City in 2022. Many of the monitoring and maintenance measures are no longer necessary; for example, irrigation is no longer a requirement, given that the newly planted trees and other vegetation have established, and is no longer needed. However, the City will continue with the following monitoring and maintenance guidelines (as they relate to the riparian habitat):

- Annual monitoring of tree, shrub, and plant health, including an overall assessment of dominant vegetation components
- Annual monitoring and control of invasive weed species

- Continued removal of trash and debris

In addition, the following management measures will be complied with for riparian habitats at the Charleston Retention Basin:

- For all vegetation and/or infrastructure maintenance in riparian habitats of the Plan Area, follow applicable Project Evaluation guidelines and avoidance and minimization measures as outlined below in Section 12.
- Comply with recommended no-disturbance buffer zones around active bird nests in riparian habitats, as outlined below in Section 5.4 and Section 12.
- For all wetland and riparian habitats, avoid the construction of additional lighting sources within the Plan Area that can result in impacts on sensitive habitat areas and the wildlife species that use them. At Shoreline, the City may consider referring to the International Dark-Sky Association's (2018) Dark Sky Park Initiative, which is a leading resource for the USFWS Dark Skies Initiative (USFWS 2022). Applicable Dark Skies Initiative measures include:
    - Install lighting only when and where it is needed; avoid installing lighting near any sensitive habitat
    - Use energy saving features such as timers and motion sensors on outdoor lights
    - Shield lighting so that it only shines downward, while angling lighting toward paths or other public-access areas, not toward sensitive habitats
    - Minimize the output of lighting fixtures

## 3.3 Nontidal Freshwater Wetland

### 3.3.1 Locations within Plan Area

Nontidal freshwater wetland habitat occurs primarily in the Charleston Retention Basin, which was described in detail in Section 3.2.1. More limited nontidal freshwater wetland habitat is present in the High Level Ditch on the northern side of the service road that separates the Vista Slope area from the golf course within Shoreline. Although not mapped on Figure 2, nontidal freshwater wetland also occurs around the periphery of the nontidal freshwater pond habitat on the golf course.

### 3.3.2 Vegetation

The nontidal freshwater wetland habitat in the Charleston Retention Basin is dominated by California bulrush (*Schoenoplectus californicus*) and various cattail species (*Typha* ssp.). Other common plant species found along the edges of the wetland include dallis grass (*Paspalum dilatatum*), Mexican rush (*Juncus mexicanus*), and tall flatsedge (*Cyperus eragrostis*). Saltgrass (*Distichlis spicata*) occurs along transition zones between the marsh and surrounding riparian corridor. At Shoreline, vegetation in the nontidal freshwater wetland in the High Level Ditch and around the golf course ponds is similar, being dominated by cattails in the ditch and by cattails and California bulrush around the golf course ponds.

### 3.3.3 Wildlife

The nontidal freshwater marsh habitat in the Plan Area provides valuable habitat for several wetland-associated wildlife species. Wetland specialists, such as the marsh wren (*Cistothorus palustris*) and red-winged blackbird (*Agelaius phoeniceus*), nest in the retention basin and around the golf course ponds. Mallards (*Anas platyrhynchos*), American coots (*Fulica americana*), and pied-billed grebes (*Podilymbus podiceps*) have nested in the retention basin, although the extent of open water habitat for these species has dwindled in recent years as emergent and woody vegetation have expanded. Wetland birds such as the Virginia rail (*Rallus limicola*) and sora (*Porzana carolina*) occur in nontidal freshwater marsh as nonbreeders, and Lincoln's sparrows (*Melospiza lincolnii*) and other sparrows use the marsh vegetation for foraging and cover during migration and winter. The smaller extent of the wetland habitat, and lack of large open water areas, in the High Level Ditch, limits its value to birds somewhat, though red-winged blackbirds nest here, and a variety of birds use this ditch as cover.

Amphibians such as the native arboreal salamander and Pacific treefrog and nonnative bullfrog (*Lithobates catesbeianus*) breed and forage in this habitat at both the retention basin and the Shoreline locations. A number of odonate (dragonfly and damselfly) species occur in these marsh habitats, including damselflies such as the vivid dancer (*Argia vivida*), familiar bluet (*Enallagma civile*), western forktail (*Ischnura perparva*), Pacific forktail (*Ischnura cervula*), and black-fronted forktail (*Ischnura denticollis*), and dragonflies such as the variegated meadowhawk (*Sympetrum corruptum*), cardinal meadowhawk (*Sympetrum illotum*), blue-eyed darner (*Aeshna multicolor*), common green darner (*Anax junius*), and flame skimmer (*Libellula saturata*). In addition, many wildlife species that occur in the riparian habitats of the retention basin, as described above, will also occur in the basin's freshwater marsh habitat.

**Special-Status Wildlife Species Use of Nontidal Freshwater Wetland Habitats**

The San Francisco common yellowthroat, a California species of special concern, uses brackish and freshwater marshes near the edge of the Bay, and early-successional riparian habitat in broader floodplains, as nesting and foraging habitat, and for cover (Bousman 2007a). Nests are typically located in extensive stands of bulrushes in brackish marshes and dense cattail beds in freshwater marshes, but the species also nests in forbs in riparian habitats. Several pairs of this species nest in the freshwater wetland habitat in the Charleston Retention Basin, in wetlands along the High Level Ditch, and in wetlands around the edges of the golf course ponds. At the Charleston Retention Basin, the freshwater marsh has been gradually overtaken by willows and cottonwoods, converting it from wetland to riparian habitat. This natural succession will likely continue until there is little wetland remaining. Common yellowthroats occur primarily in the wetland vegetation and in the herbaceous understory of the riparian vegetation found in the retention basin. When the riparian vegetation is so dense that it no longer allows for growth of a dense herbaceous understory, common yellowthroats will use such areas for foraging and cover but they are unlikely to continue to nest in such areas. As a result, yellowthroat numbers at the Charleston Retention Basin are likely to decline over time due to natural succession.

### 3.3.4 Wildlife Corridors

The nontidal freshwater wetlands in the Charleston Retention Basin and around the golf course ponds are isolated from other wetlands in the vicinity and thus do not provide important wildlife corridors or connectivity. The long, linear nontidal freshwater wetland in the High Level Ditch is likely used for cover by animals dispersing through that section of Shoreline, though it lacks connectivity to similar habitat at either end. Nonetheless, freshwater wetlands in the Plan Area may be used by wildlife species for cover and refugia while they are dispersing through the area, and all of these wetlands provide refugia for dispersing amphibians and migratory stopover habitat for migrating, wetland-associated birds.

### 3.3.5 Management Recommendations

As described above in Section 3.2.5, the nontidal freshwater wetlands in the Charleston Retention Basin were being managed by Google from 2017 to 2021 but will be managed by the City moving forward. The City will manage these wetlands, and the basin as a whole, as described above in Section 3.2.5 for the riparian habitat in the basin. In addition, the density of aquatic vegetation (e.g., tules, cattails) within the High Level Ditch will be managed so as to continue to provide cover, nesting habitat, and refugia for wildlife. As a result, vegetation within this ditch will not be removed or thinned unless necessary for safety or to convey water for infrastructure protection or unless the vegetation becomes so dense that it no longer provides suitable aquatic and wetland habitat for dispersing amphibians and other aquatic species, as well as foraging habitat for migratory birds.

## 3.4 Nontidal Freshwater Pond

### 3.4.1 Locations within Plan Area

Nontidal freshwater pond habitat is represented in the Plan Area by the ponds at the Shoreline Golf Links course. The water in these ponds is a combination of fresh and recycled water sources.

### 3.4.2 Vegetation

The open water portions of the freshwater ponds at the golf course are devoid of surface vegetation, though submergent vegetation and algae may be present, especially in shallower areas. The margins of the pond are dominated by dense stands of tules and cattails, discussed in the nontidal freshwater wetland section above. Coyote brush, willows, and other native and nonnative shrub and trees are interspersed around the margins of the pond, transitioning into irrigated grasslands of the golf course.

### 3.4.3 Wildlife

The freshwater pond at the golf course is not hydrologically connected to any other aquatic habitats. However, native and nonnative fish occupy the pond. In addition, waterbirds such as the American coot, green heron (*Butorides virescens*), great egret (*Ardea alba*), and belted kingfisher (*Megaceryle alcyon*) forage in the open water and along the margins of the ponds. California gulls (*Larus californicus*) and double-crested cormorants (*Nannopterum auritum*) may occasionally forage or bathe at the ponds, as they move between inland bodies of water and the

Bay. The mallard and Canada goose (*Branta canadensis*) forage in the vegetated margins of the ponds and use these ponds as refugia from terrestrial predators such as coyotes and foxes; these waterfowl nest in taller, denser herbaceous vegetation within grasslands in the "rough" areas of the golf course. The vegetated margins of the freshwater ponds also provide roosting and breeding sites for the green heron, and a variety of songbirds including the song sparrow, marsh wren, and red-winged blackbird. Wintering ducks such as the northern shoveler (*Spatula clypeata*), lesser scaup (*Aythya affinis*), and bufflehead (*Bucephala clangula*) occur in these ponds during the fall and winter. Other bird species such as the tree swallow and barn swallow (*Hirundo rustica*), and bat species such as the Yuma myotis (*Myotis yumanensis*), forage aerially on insects over the ponds.

Common amphibian species that occur in these ponds include the native Pacific treefrog and the nonnative bullfrog. Nonnative red-eared sliders (*Trachemys scripta elegans*) occur in the ponds on the golf course. Other wildlife, such as raccoons, striped skunks, and gray foxes, utilize the ponds as a source of drinking water, and may forage in the vegetated margins, as well as using the margins of the ponds for cover.

**Special-Status Wildlife Species Use of Nontidal Freshwater Pond Habitats**

As mentioned in Section 3.3.3, the San Francisco common yellowthroat nests in the vegetated margins of the freshwater ponds on the golf course. The northwestern pond turtle, a California species of special concern, has been observed once in the ponds at the golf course, and these ponds provide this species with suitable aquatic refugia from terrestrial predators. Where floating vegetation or open mud banks are present, such features provide suitable basking sites for turtles. Juvenile pond turtles can feed and grow in the shallower water within the emergent vegetation on the margins of the ponds. Adjacent non-irrigated grasslands, consisting of open areas with little to no tree or shrub canopy cover, may provide suitable nesting locations for the species. However, the golf course fairways, greens, and sandtraps do not provide suitable nesting habitat, given the frequent mowing, irrigation, maintenance, and heavy use by golfers of those areas, and turtles may be unable to dig through the thick turf on the irrigated fairways.

### 3.4.4 Wildlife Corridors

Given the isolation of the freshwater ponds on the golf course from other waterbodies in the Plan Area, these ponds do not provide an important wildlife corridor for wetland/aquatic wildlife species. However, the vegetated margins of the pond do provide cover and refugia that some wildlife species may use as they move across the golf course and other developed areas of Shoreline. Also, the ponds provide year-round aquatic habitat for dispersing amphibians and foraging habitat for migrant waterfowl moving through the Bay area in spring and fall.

### 3.4.5 Management and Enhancement Recommendations

To reduce high nutrient levels and algae in the golf course ponds, two aerators (i.e., water fountains) in the large pond help to enhance water quality by increasing oxygen, decreasing carbon dioxide, and stabilizing pH levels. Algaecides are periodically used in the maintenance of the golf course ponds as needed to prevent the algae

from entering the irrigation system and damaging the pumps that irrigate Shoreline. The City will only use algaecide as needed to prevent damage to the irrigation system.

The City will consider installing several floating islands in the ponds to provide basking sites for the northwestern pond turtle, and possibly sites for waterfowl that use the ponds. Turtles that are able to bask on structures away from the shoreline are safer from mammalian predation, and thus floating islands would increase the survivorship of northwestern pond turtles in the ponds. A full description of floating islands is presented below in Section 8.2.5. In addition, the City installs bails of barley hay at strategic locations in the pond in order to prevent the growth of algae and to further decrease the need for algaecide.

In addition to the management recommendations for the ponds themselves, the following management guidelines will be followed:

- All vegetation and/or infrastructure maintenance in and around the golf course ponds will follow all applicable Project Evaluation guidelines and avoidance and minimization measures as outlined below in Section 12.
- All recommended no-disturbance buffer zones around active bird nests found in vegetation surrounding the golf course ponds, as outlined below in Section 5.4 and Section 12 will be followed.
- Measures to minimize adverse effects of lighting on sensitive species will be implemented as described in Section 3.2.5.

## 3.5 Nontidal Saltwater Lake/Island

### 3.5.1 Location within Plan Area

The Shoreline Sailing Lake (Shoreline Lake) is an artificial nontidal saltwater lake located in the northwest portion of the Plan Area. Shoreline Lake is approximately 45 ac in size, with an average depth of 18 ft. The nontidal saltwater lake is filled by waters from the San Francisco Bay from a pump station located between Charleston Slough and Coast Casey Forebay in the northwest corner of the lake. Water is discharged from the lake into Permanente Creek and then conveyed back into the Bay (City of Mountain View 2021). A small (0.11-ac) island is located in the western portion of the lake. Another small island (0.28 ac) located in Charleston Slough is also addressed in this section.

### 3.5.2 Vegetation

With the exception of the small island in the western portion of the lake, Shoreline Lake consists entirely of open water. No extensive emergent or submerged vegetation is evident within the lake. The shoreline of the lake nearest to the boathouse is composed of clay, mud, and gravel, with little to no vegetation (City of Mountain View 2021). The eastern and southern margins of the lake are bordered by non-irrigated upland habitats consisting of nonnative grasses and scattered shrubs such as coyote brush and toyon. The small island within Shoreline Lake is dominated by ruderal, salt-tolerant ground vegetation interspersed with barren, sandy areas.

The island in Charleston Slough is overgrown with dense, tall patches of weedy plants such as Russian thistle (*Salsola tragus*), perennial pepperweed (*Lepidium latifolium*), and other invasive plant species.

### 3.5.3 Wildlife

Given the saline conditions of Shoreline Lake, amphibians and reptiles, which are associated with freshwater habitats, do not use the lake. A number of salt tolerant fish and bivalves occur in Shoreline Lake, providing food for numerous waterbirds. Herons and egrets forage around the margins of the lake year-round, and double-crested cormorants, Forster's terns, Caspian terns (*Hydroprogne caspia*), and several gull species feed on fish throughout the lake. A number of diving ducks use the lake for foraging, primarily during winter and migration; these include the surf scoter (*Melanitta perspicillata*), common goldeneye (*Bucephala clangula*), Barrow's goldeneye (*Bucephala islandica*), greater scaup (*Aythya marila*), lesser scaup, bufflehead, ruddy duck (*Oxyura jamaicensis*), and canvasback (*Aythya valisineria*). Dabbling ducks such as the American wigeon (*Mareca americana*), northern shoveler (*Spatula clypeata*), and others forage on submerged aquatic vegetation. Small numbers of shorebirds forage around the margins of the lake, though the steep banks and high human activity in many areas precludes the presence of large numbers of shorebirds.

The small island in Shoreline Lake is used annually as a nesting site for black skimmers (discussed more in the following section), Forster's terns, black-necked stilts, American avocets, and occasionally by resident waterfowl such as Canada geese and mallards. During the nonbreeding season, the island is used as a roosting site for a variety of resident and migratory waterfowl, waterbirds, and gull species such as the American white pelican, California brown pelican, and California gull.

The island in Charleston Slough may be used by small numbers of nesting Canada geese and mallards, which take advantage of the dense vegetation to conceal their nests. Otherwise, it is not heavily used by waterbirds, as the dense vegetation prevents these birds from standing on the island.

**Special-Status Wildlife Species Use of Nontidal Saltwater Lake/Island Habitats**

The black skimmer, considered a California species of special concern when nesting, breeds annually on the island in Shoreline Lake. Black skimmers were once considered a rare nonbreeding visitor to the San Francisco Bay area until the mid-1990s, when they began nesting at a number of different locations in managed salt pond islands in the South Bay (Layne et al. 1996). Black skimmers first nested on the island in Shoreline Lake in 2013; the number of nesting pairs there fluctuated from zero to two until 2019, when nine pairs nested on the island. Numbers have continued to increase, to 22 pairs in 2020 and approximately 50 nesting pairs in 2021 and 2022. Black skimmers forage for fish in the lake, nearby in Charleston Slough and managed ponds, and in the Bay north of the Plan Area. The state fully-protected brown pelican forages in the lake and uses the small island as a roosting site, primarily during the winter. The state fully-protected peregrine falcon also occasionally forages over the lake. The island in Charleston Slough does not provide important habitat for any special-status species currently.

### 3.5.4 Wildlife Corridors

Shoreline Lake and its island, as well as the island in Charleston Slough, do not provide important habitat connectivity for aquatic or terrestrial wildlife. However, the lake is a very important migratory stopover site for migrant waterbirds moving through the region in spring and fall.

### 3.5.5 Management and Enhancement Recommendations

Current water management in the lake provides suitable conditions for fish and mollusks that in turn furnish food for a variety of waterbirds. Such water management will continue. The following management and enhancement measures will be considered for the nesting island in Shoreline Lake:

- Maintain the disturbance-free buffer zone surrounding the nesting island, year-round, and employ temporary or permanent barriers such as buoys, ropes, fencing, pylons, and signs that are more conspicuous to boaters. This will reduce intrusion by boaters into the buffer zone and reduce disturbance of both nesting and roosting birds on the island.
- Increase the number and visibility of educational signs at the boat launch area directing boaters to respect the buffer around the island.
- During the nonbreeding season for island-nesting birds (September 1 through January 31), remove some vegetation to maintain low-statured, sparsely vegetated areas interspersed between sandy soils for nesting.
- Decrease the rate of bank erosion of the island by employing basic principles and techniques of bank stabilization such as:
    - Building up a gradual slope on the banks of the islands with a combination of imported soils, tree logs, gravel, and/or riprap, so as to be able to absorb the energy of the waves that over-time slowly erodes the banks of the islands. This bank stabilization may necessitate the fill of jurisdictional waters within Shoreline Lake, thus requiring Clean Water Act Section 404/401 permits from the USACE and San Francisco Bay Regional Water Quality Control Board (RWQCB).
    - On top of the built up banks and at the edges of the islands, plant low-growing, native, salt-tolerant vegetation such as saltgrass and Pacific pickleweed (*Salicornia pacifica*).
- Do not install any features suitable for use by crows, ravens, or raptors in areas where those structures could increase predation success on birds nesting on the island in Shoreline Lake (e.g., in areas without existing perches of the same or higher quality as those proposed). If such features must be installed, incorporate perch deterrence measures within the features so they do not facilitate predation of sensitive species.

In addition, the following management recommendations are made for any project or work activities that are conducted anywhere within Shoreline Lake:

- All vegetation and/or infrastructure/building maintenance at Shoreline Lake will follow all applicable Project Evaluation guidelines and avoidance and minimization measures as outlined below in Section 12.

- All recommended no-disturbance buffer zones around active bird nests at Shoreline Lake, as outlined below in Section 5.4 and Section 12 will be followed.

Management and enhancement measures to be considered for the island in Charleston Slough, to improve the value of this island to waterbirds, are as follows:

- Consider the viability and resources needed to manage invasive vegetation on the island.
- Modify the substrate of the island by adding some combination of salt, sand, shells, and pebbles to inhibit plant growth. These materials can be added in wood frames to help stabilize the nesting substrate and provide attractive nest sites for birds.
- Periodically remove vegetation from the island so that vegetation is low-statured and sparse, thus providing some cover for nesting birds without becoming so tall and dense as to preclude use of the island by nesting terns, skimmers, and shorebirds, and by roosting waterbirds.

## 3.6 Nontidal Brackish Water/Marsh

### 3.6.1 Location within Plan Area

Nontidal brackish water/marsh habitat in the Plan Area occurs primarily in Coast Casey Forebay, which is located in the northwest corner of the Plan Area. Coast Casey Forebay serves as a flood control retention basin for the City of Mountain View. Accumulated storm water is discharged from the Coast Casey Forebay pump station into Charleston Slough to the northeast and Adobe Creek (part of the Palo Alto Flood Basin) to the northwest (Schaaf & Wheeler 2016). A narrow, linear area of nontidal brackish water/marsh habitat is located between in the northeast part of the Plan Area, along a ditch bounded by the Northeast Meadowlands to the west and the Bay Trail and Stevens Creek Tidal Marsh to the east.

### 3.6.2 Vegetation

The brackish waters of Coast Casey Forebay support a mosaic of plant species with a range of salinity tolerances. Near the inlet of the Forebay, where the Coast Casey Channel enters the basin's southeast corner, fresher water supports a dense stand of cattails and California bulrush. Where freshwater mixes with strongly alkaline soils, brackish species including alkali bulrush (*Bolboschoenus robustus*) and fat hen (*Atriplex prostrata*) become more abundant. Slightly higher-elevation, more saline areas are dominated by California pickleweed and saltgrass. Other common plant species found within the nontidal brackish water/marsh habitat include marsh gumplant (*Grindelia stricta*), alkali heath (*Frankenia salina*), dodder (*Cuscuta salina*), and alkali weed (*Cressa truxillensis*). While native species dominate this habitat, several invasive species, including perennial pepperweed and Russian thistle, also occur. The linear nontidal brackish water/marsh habitat east of the Northeast Meadowlands area is much more sparsely vegetated than the Coast Casey Forebay. Most vegetation is saline in nature, with saltgrass and pickleweed dominant.

### 3.6.3 Wildlife

The more open, less heavily vegetated areas of the nontidal brackish water/marsh habitat in Coast Casey Forebay provide roosting and foraging habitat for shorebirds such as the black-necked stilt, American avocet, western sandpiper (*Calidris mauri*), least sandpiper (*Calidris minutilla*), dowitchers (*Limnodromus* sp.), and willet (*Tringa semipalmata*), as well as ducks such as the green-winged teal (*Anas crecca*) and northern pintail (*Anas acuta*). The gadwall (*Anas strepera*), mallard, cinnamon teal (*Spatula cyanoptera*), American coot, and common gallinule (*Gallinula galeata*) nest in and around the Forebay. Swallows forage over this habitat regularly, and cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows nest under (and formerly nested on) the pumphouse. Large numbers of shorebirds, gulls, and waterfowl loaf/roost and bathe in more open areas of the Forebay, and the Virginia rail and sora forage in and at the edges of more densely vegetated areas. Other common bird species that occur in this habitat as either foragers or nesters include the marsh wren, Brewer's blackbird (*Euphagus cyanocephalus*), and red-winged blackbird.

House mice (*Mus musculus*), deer mice, and California voles are common in brackish marshes, such as the pickleweed-dominated areas of Coast Casey Forebay, where the western harvest mouse (*Reithrodontomys megalotis*) also occurs. Due to the salinity, amphibians are generally absent from this habitat. However, reptiles such as the gopher snake forage in these marshes.

The ditch east of the Northeast Meadowlands does not provide habitat as valuable as that in the Coast Casey Forebay due to the paucity of vegetation along its banks. However, waterfowl and small numbers of black-necked stilts and American avocets forage in this area.

**Special-Status Wildlife Species Use of Nontidal Brackish Water/Marsh Habitats**

The San Francisco common yellowthroat nests in Coast Casey Forebay, and other special-status bird species that could potentially nest in this habitat include the Alameda song sparrow (*Melospiza melodia pusillula*) and Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*). The northern harrier (*Circus hudsonius*), a California species of special concern, forages at Coast Casey Forebay year-round. Although the habitat in Coast Casey Forebay is not particularly ideal for the state threatened California black rail (*Laterallus jamaicensis coturniculus*), the species has been recorded in the Forebay and could possibly nest there. The federal and state endangered salt marsh harvest mouse could occur in this habitat where dense vegetative cover, in the form of pickleweed and other halophytic vegetation, is present. The salt marsh wandering shrew, a California species of special concern, could also occur in Coast Casey Forebay. Bryant's savannah sparrows forage, and could possibly nest, along the ditch east of the Northeast Meadowlands, and it is possible that small numbers of salt marsh harvest mice could occur in pickleweed and other vegetation along that ditch.

### 3.6.4 Wildlife Corridors

Dense vegetative cover in and adjacent to the Coast Casey Forebay provides cover for animals dispersing between habitats to the west, such as Adobe Creek and the Palo Alto Flood Basin, and the rest of Shoreline Park to the east. Because terrestrial animals are unable to move through the managed ponds and Charleston

Slough north of the Forebay, and many would be unable or unwilling to move through the heavily urbanized areas south of the Forebay, the Forebay provides an important area of connectivity for regional wildlife movements along the edge of San Francisco Bay. Also, the Forebay provides an important migratory stopover site for migrant waterbirds and marsh birds moving through the region in spring and fall. The nontidal brackish water/marsh ditch east of the Northeast Meadowlands area provides some vegetative cover for dispersing animals. Terrestrial animals, particularly mammals, moving along the northern edge of the Plan Area and/or along Stevens Creek may travel along this ditch.

### 3.6.5 Management and Enhancement Recommendations

The following management recommendations are intended to maintain suitable habitat for wildlife in Coast Casey Forebay while minimizing human disturbance to sensitive wildlife and their habitats:

- Allow water management in the Forebay that takes into consideration the complex habitat mosaic currently present.
- Install "Do Not Enter – Sensitive Habitat Area" signage around the Forebay to discourage people from entering these areas.
- All new sign posts should be designed to minimize their use as avian predator perches (e.g., they should have conical tops or otherwise preclude perching). Do not install any features suitable for use by crows, ravens, or raptors in areas where those structures could increase predation success on animals in the Forebay (e.g., in areas without existing perches of the same or higher quality as those proposed). If such features must be installed, incorporate perch deterrence measures within the features so they do not facilitate predation of sensitive species.
- Provide new and/or additional trash receptacles along trails and pathways that are adjacent to Coast Casey Forebay to minimize the amount of refuse, which can attract unwanted terrestrial and avian predators. Provide signage indicating the importance of preventing litter (especially involving food waste), provide adequate waste receptacles that are self-closing, and empty those receptacles before they fill.
- Provide visual and physical buffers between adjacent trails and pathways and Coast Casey Forebay by planting native vegetation such as saltbush (*Atriplex* sp.), coyote brush, and other plants around the edges of Coast Casey Forebay (while leaving some open areas for wildlife viewing). These buffers are not intended to remove any currently accessible areas from public access, but rather would discourage people from entering sensitive habitats.
- Consider planting additional marsh/upland transition vegetation along the lower edges of the banks around the Forebay, and along the nontidal brackish water/marsh ditch east of the Northeast Meadowlands, to provide additional cover and habitat for wildlife.
- Any required vegetation maintenance, such as mowing around the edges of the trails and pathways that are adjacent to Coast Casey Forebay, should avoid, to the extent feasible, the avian nesting season (February 1 through August 31).

- All vegetation and/or infrastructure maintenance in nontidal brackish water/marsh habitats of the Plan Area will follow all applicable Project Evaluation guidelines and avoidance and minimization measures as outlined below in Section 12.
- All recommended no-disturbance buffer zones around active bird nests in nontidal brackish water/marsh habitats, as outlined below in Section 5.4 and Section 12 will be followed.
- Measures to minimize adverse effects of lighting on sensitive species will be implemented as described in Section 3.2.5.

## 3.7 Tidal Marsh/Mudflat

### 3.7.1 Locations within Plan Area

Mountain View Tidal Marsh in the north-central part of the Plan Area and Stevens Creek Tidal Marsh in the northeast represent the tidal marsh/mudflat habitat in the Plan Area. The Mountain View Tidal Marsh is tidally influenced by Permanente Creek, which flows from south to north through the marsh and into San Francisco Bay. Tidal marsh is also present along the entire reach of Permanente Creek within the Plan Area, as tidal influence extends upstream about as far as Amphitheatre Parkway. The Stevens Creek Tidal Marsh is tidally influenced through water control structures connecting the marsh to Stevens Creek. These two tidal marshes and Permanente Creek are largely vegetated but provide limited mudflat areas within tidal channels at low tide.

### 3.7.2 Vegetation

Tidal marsh is dominated by a small number of herbaceous, salt-tolerant species that form dense stands. Species composition within this habitat varies in response to fine-scale ecological gradients related to soil salinity and frequency of inundation. The lower tidal zone (to mean high tide) is generally dominated by Pacific cordgrass (*Spartina foliosa*), while the middle zone (from mean high tide to higher tide) is dominated by pickleweed, and the upper zone is dominated by saltgrass. Marsh gumplant, alkali heath, and alkali weed occur primarily along the upper edges of the marsh and on slightly elevated areas along tidal channels. Brackish-marsh plant species such as alkali bulrush also occur in tidal marsh in the Plan Area. While native species dominate this habitat, several invasive species, including smooth cordgrass (*Spartina alterniflora*) and perennial pepperweed, also occur in this habitat type.

### 3.7.3 Wildlife

Common wildlife use of the tidal marsh habitats in the Plan Area is similar to that described above for the nontidal brackish waters/marsh habitat. The mudflats within the tidal marsh contain high densities of invertebrates such as bivalves, crustaceans, and polychaete worms that are food for many bird species, though because the tidal marsh habitat in the Plan Area is heavily vegetated, no extensive mudflat (and therefore few of the shorebirds that forage in intertidal mudflats in less heavily vegetated areas such as Charleston Slough and the edges of the Bay) is present in the Plan Area. The network of tidal channels in this habitat, including Permanente Creek, provide foraging opportunities for wading birds such as the snowy egret and great egret.

**Special-Status Wildlife Species Use of Tidal Marsh/Mudflat Habitats**

Tidal marsh habitat supports a number of special-status species, many of which are endemic to San Francisco Bay. The state and federally endangered California Ridgway's rail nests in cordgrass, alkali bulrush, dense stands of pickleweed, and marsh gumplant in tidal marsh habitats in the Plan Area. The species moves and forages along networks of tidal channels and seeks refugia in the higher zone areas of the tidal marsh during high tides. The California black rail uses the same habitats as the Ridgway's rail and occur in the tidal marshes within the Plan Area. The species has recently been detected in Stevens Creek Tidal Marsh and is expected to occur in the Mountain View Tidal Marsh area as well. The San Francisco common yellowthroat, Alameda song sparrow, and Bryant's savannah sparrow all nest in both the Mountain View and Stevens Creek Tidal Marsh habitats and along Permanente Creek. Yellowthroats and song sparrows prefer dense herbaceous vegetation wherever it occurs throughout the marsh, while savannah sparrows nest in shorter vegetation such as pickleweed and upland transition zone habitats. Northern harriers also likely nest in these tidal marshes. The salt marsh harvest mouse and salt marsh wandering shrew are expected to occur throughout the Mountain View and Stevens Creek Tidal Marshes, and they may occur to some extent in marshes along Permanente Creek upstream from the Mountain View Tidal Marsh.

### 3.7.4 Wildlife Corridors

The tidal channels within the tidal marsh habitats in the Plan Area, including Permanente Creek, provide movement pathways for fish and aquatic invertebrates, and are used for local movements by the California Ridgway's rail and California black rail. Permanente Creek provides dense vegetation along its banks, transitioning from tidal marsh to upland grassland habitats, which creates an important movement corridor for many wildlife species that are moving north to south through the Plan Area. Dispersing animals take advantage of the dense vegetation along the edges of these marshes; for example, animals dispersing along the upland/bayland interface along the northern edge of the Plan Area and along Stevens Creek use the vegetation around the tidal marshes for cover and foraging during dispersal. Where upland transition zone vegetation is present at the upper edge of the tidal marsh, it provides some cover for dispersing animals.

### 3.7.5 Management and Enhancement Recommendations

Management recommendations for the tidal marsh/mudflat habitat are the same as those outlined above in Section 3.6.5 for nontidal brackish water/marsh habitats.

## 3.8 Developed

### 3.8.1 Locations within Plan Area

Developed land cover types are found throughout the Plan Area and include the Shoreline Lake Boathouse, dock, and associated facilities; the Shoreline Golf Links Course, parking lots, restaurant and other infrastructure; the historic Rengstorff House property located south of Shoreline Lake; the Shoreline Athletic Fields along Garcia Avenue in the southwest portion of the Plan Area; the Shoreline Maintenance facility; the kite flying lot parking area; and all other maintained roadways and miscellaneous infrastructure found at Shoreline. In

addition, the egret/heron rookery found along Shorebird Way on Google's Charleston Campus is part of the developed land cover type.

### 3.8.2 Vegetation

The developed land cover type typically supports little to no native vegetation. Various ornamental plant species, are found within developed areas, landscaped features, and roadway strips. For example, blue gum eucalyptus trees (*Eucalyptus globulus*) and sweet gum (*Liquidambar styraciflua*) are common. However, some native Fremont cottonwoods and other native shrubs and trees are found at the Rengstorff House property. The egret/heron rookery occurs primarily in London planetrees.

### 3.8.3 Wildlife

Developed areas typically support a suite of relatively common wildlife species that are tolerant of periodic human disturbance. Some of the most abundant species in developed areas, such as the European starling (*Sturnus vulgaris*), rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*), Virginia opossum, house mouse, eastern gray squirrel, Norway rat, and black rat, are nonnative species that are well adapted to the cover, nesting/denning, and foraging conditions (e.g., anthropogenic food sources) provided by developed areas. In addition, a number of native species have adapted to these conditions. Native bird species commonly found in urban land cover types in the Plan Area include the house finch (*Carpodacus mexicanus*), northern mockingbird, Anna's hummingbird, and California towhee. Red-shouldered hawks and Cooper's hawks nest in mature trees in landscaped areas. Native mammals such as the deer mouse, raccoon, and striped skunk, and reptiles such as the western fence lizard, utilize these developed areas heavily as well.

The egret/heron rookery located along Shorebird Way is a unique wildlife area in an otherwise highly developed and urbanized setting. A row of nonnative London planetrees lining the eastern side of Shorebird Way supports nests of black-crowned night herons, snowy egrets, and great egrets each year. This rookery is regionally significant, as it is one of the largest egret colonies in the South Bay. In 2022, the rookery contained 204 active nests (i.e., 80 black-crowned night heron, 81 great egret, and 43 snowy egret nests) (G. Burns, pers. comm.). This section of Shorebird Way and the area beneath and around the rookery are managed to protect the nesting birds and minimize disturbance of the rookery, as described in Section 3.8.5.

**Special-Status Wildlife Species Use of Developed Land Cover Types**

Most developed areas are rarely used by special-status species given the lack of suitable habitats and the level of human disturbance. However, a pair of white-tailed kites have successfully nested the past two years (i.e., 2021 and 2022) at the top of two different coast redwood trees at the eastern end of Charleston Road and north of the egret/heron rookery on Shorebird Way. In addition, a pair of white-tailed kites nested successfully in 2019 in a tree adjacent to the south end of the parking lot of Shoreline Lake Boathouse. White-tailed kites typically avoid nesting in urbanized areas throughout the Plan Area region. However, if tall trees with adequate cover occur in developed areas, and nearby open habitats for foraging are available white-tailed kites will take advantage of these trees for nesting sites. The willow flycatcher, a state endangered species, has been extirpated

as a breeder from the San Francisco Bay area (Bousman 2007b), but it occurs as an uncommon migrant, primarily in fall, in riparian habitats and other areas with trees and shrubs.

### 3.8.4 Wildlife Corridors

Developed land cover types do not provide important movement corridors for most wildlife species, given the barriers posed by busy roadways, fences, and general human disturbance. However, some animals, such as gray foxes, disperse primarily at night or around dawn and dusk, when human activity in the developed portions of the Plan Area is lower. At those times, animals may be more willing to cross roads and other areas with limited cover, taking advantage of shrubs and other vegetation within landscaped areas. As a result, some wildlife movement through developed areas may occur, though most such movement occurs in more natural habitats or at the developed/natural habitat interface.

### 3.8.5 Management Recommendations

- Management measures that have been employed at the egret/heron rookery by Google and the City will continue as a best practice and following the North Bayshore Precise Plan EIR, as follows:
    - The section of Shorebird Way that passes through the rookery will be closed to vehicular traffic from May through September.
    - Vegetation maintenance (i.e., mowing underneath the trees) will not occur from May through September. However, weedy vegetation that grows during the breeding season will be cut during the nonbreeding season to remove cover that may be used by terrestrial predators and that may entangle young birds that fall from nests.
    - No vegetation other than turf, low-growing grasses, or other herbaceous plants may be planted within 100 feet of the rookery to minimize cover for mammalian predators and avoid entanglement of young birds that have fallen from nests.
    - No external construction or large-scale/intensive landscaping involving heavy equipment or loud noise shall occur within 200 feet of the rookery during the March 1 to August 31 period unless a survey by a qualified biologist has demonstrated that, after June 1, egrets have either not nested that year or that all young have fledged and departed the rookery area.
- All vegetation and/or building maintenance in developed areas of the Plan Area will follow all applicable Project Evaluation guidelines and avoidance and minimization measures as outlined below in Section 12.
- All recommended no-disturbance buffer zones around active bird nests in developed areas, as outlined below in Section 5.4 and Section 12 will be followed.

# Section 4. Special-Status Species of the Plan Area

For purposes of the Plan, "special-status" wildlife include animal species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the CDFW as a California species of special concern.
- Designated by the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515)
- Included on CDFW's Watch List or USFWS's list of Bird of Conservation Concern

A total of 35 special-status wildlife species are known to occur, or have some potential to occur, within the Plan Area. The legal status and occurrence of these species in the vicinity of the Plan Area are presented below in Table 1. Figure 4 depicts occurrence records of special-status animals mapped by the California Natural Diversity Data Base (CNDDB 2022) within 1 mile of the Plan Area. Figure 3 depicts the locations of burrowing owl mitigation and preserve areas, as well as the approximate locations of burrowing owl concentrations in the Plan Area. Figure 5 depicts prime locations of occurrence and focal conservation areas in the Plan Area of the five umbrella species, black skimmer, California Ridgway's rail, white-tailed kite, San Francisco common yellowthroat, and monarch butterfly. The prime locations of occurrence and conservation focus for the first four umbrella species are fairly straightforward, and tied to very specific habitats and locations in the Plan Area, though the white-tailed kite also forages in grassland throughout the Plan Area, and could potentially nest in trees just about anywhere in the Plan Area. For monarch butterfly, the areas where habitat has been enhanced in ways that could specifically benefit this species are depicted on Figure 5. However, monarchs occur (in low numbers) throughout the Plan Area as migrants and are tied more to the presence of milkweed and nectar plants, wherever they occur, than to specific habitat types. Nonetheless, grasslands and landscaped areas within developed land cover types are the primary habitats that support milkweed and nectar plants for the monarch.

One special-status plant species occurs within the Plan Area at Shoreline – Congdon's tarplant. This rare plant species occurs in grassland habitat areas within the Plan Area. Congdon's tarplant is designated by the California Native Plant Society (CNPS) as a List 1B.1 plant under the California Rare Plant Rank system, meaning that it is considered rare, threatened, or endangered in California and elsewhere (CNPS 2022). However, the plant has no FESA or CESA status. In general, the species occurs in alkaline soils in valley and foothill grasslands, typically in sumps and disturbed sites where water collects. Congdon's tarplant is often associated with nonnative grassland species, including mustard (*Brassica* spp.) and star-thistle (*Centaurea* spp.). Eight populations of the species have been known to occur within the Plan Area, as recently as 2019 (CNDDB 2022). Three populations were found in non-irrigated grasslands: 1) north of the Shoreline Athletic Fields, 2) on the western

portion of the golf course, and 3) north and east of the athletic fields. Another four populations were found north of North Road and Crittenden Hill, and one other population was found in the northwest section of the kite flying lot, all within non-irrigated ruderal grassland habitats (Figure 6). The species may occur in other non-irrigated ruderal grassland habitats within the Plan Area. Although the Plan does not specifically include measures to benefit Congdon's tarplant, measures will be implemented to minimize impacts on this species by the City in accordance with the appropriate regulations (see Section 3.1.4).

**Table 1. Special-Status Wildlife Species of the Plan Area**

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| **Federal or State Endangered, Threatened, or Candidate Species** | | | |
| Monarch butterfly (*Danaus plexippus*) | FC | Requires milkweeds for egg-laying and larval development, but adults obtain nectar from a wide variety of flowering plants in many habitats. Individuals congregate in winter roosts, primarily in Mexico and in widely scattered locations on the central and southern California coast. | The monarch butterfly is a common migrant, and less common breeder, in the South San Francisco Bay Area, where monarchs forage for nectar and breed on stands of milkweed. Native milkweed occurs in scattered locations in the South Bay, and some monarchs in the region breed on native milkweed. Those milkweed plants typically senesce (i.e., become dried and die) by fall, so under natural conditions, monarchs do not breed in the South Bay in winter (due to the absence of suitable hostplants) or form overwintering aggregations here. However, landscape plantings within the City of Mountain View also incorporate nonnative tropical milkweed (*Asclepias curassavica*). That plant species' life cycle, coupled with artificial irrigation of the plants, allows it to serve as a suitable larval hostplant even in winter. During the winter of 2020-2021, a breeding population of monarch butterflies was documented using tropical milkweed along Shorebird Way and Charleston Road, which is adjacent to the Charleston Retention Basin (James et al. 2021). Breeding monarch butterflies of various life stages have also been observed in the landscape vegetation along Charleston Way near Shorebird Way. Therefore, the monarch butterfly is present as a breeder in the vicinity of the Heron/Egret Rookery and Charleston Retention Basin. In addition, monarchs are present, at least as migrants, in any Plan Area at Shoreline where milkweed or nectar sources occur, and have been confirmed breeding at the maintenance building and in the monarch butterfly habitat area north of the kite flying lot. |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| California least tern (*Sternula antillarum browni*) | FE, SE (nesting colony), SFP | Nests along the coast on bare or sparsely vegetated, flat substrates. In the San Francisco Bay, nests in salt pannes and on an old airport runway. Forages for fish in open waters. | Suitable nesting habitat for the California least tern is not present in the Plan Area, and the species is not known to nest anywhere in Santa Clara County. Least terns have been recorded in the Plan Area vicinity during the post-breeding season, infrequently foraging over open water habitats in South Bay locations. Managed ponds where these birds forage and stage are located primarily north of Shoreline Lake in Charleston Slough and approximately 1.1 mi northwest of Stevens Creek Marsh in the Plan Area. Least terns may occasionally forage at Shoreline Lake, where the species has been reported by birders (Cornell Lab of Ornithology 2022). |
| California Ridgway's rail (*Rallus obsoletus obsoletus*) | FE, SE, SFP | Breeds and forages in tidal and brackish marsh habitats dominated by pickleweed, cordgrass, and other salt-tolerant marsh vegetation. Dependent on a network of braided tidal channels for foraging and movement corridors. | This species has been observed in Mountain View Tidal Marsh and Stevens Creek Tidal Marsh (CNDDB 2022, Cornell Lab of Ornithology 2022) and is expected to nest in both locations. |
| California black rail (*Laterallus jamaicensis coturniculus*) | ST | Nests and forages primarily in pickleweed-dominated marshes with patches or borders of bulrushes. Black rails build nests in tall grasses or marsh vegetation. Nests are usually constructed of pickleweed, and are placed directly on the ground or slightly above ground in vegetation. | Historically, this species occurred in the South Bay primarily as a winter visitor to tidal salt marshes. However, over the past decade, black rails have been increasingly recorded calling during spring and summer at scattered South Bay locations, indicating that the species is now breeding here. Multiple individuals were heard calling in the Mountain View Tidal Marsh in spring and summer 2022, and there is one spring record of a calling bird in the Coast Casey Forebay. This species could breed in the Forebay, Mountain View Tidal Marsh, and Stevens Creek Tidal Marsh. |
| Bald eagle (*Haliaeetus leucocephalus*) | SE, SFP | Occurs mainly along seacoasts, rivers, and lakes; nests in tall trees or in cliffs, occasionally on electrical towers. Feeds mostly on fish. | This species occurs as an occasional migrant and forager over Plan Area tidal marsh habitats and Shoreline Lake, and in the kite flying lot/Northeast Meadowlands areas (Cornell Lab of Ornithology 2022). Adult and juvenile bald eagles have also been observed perched in larger trees in Shoreline, primarily during the fall and winter. |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| Tricolored blackbird (*Agelaius tricolor*) | ST | This species typically nests in tall, emergent vegetation in nontidal freshwater marshes and ponds, but also in blackberry, wild rose bushes, and tall herbs. | Although nontidal freshwater and brackish wetlands (e.g., in Coast Casey Forebay and the Charleston Retention Basin) provide ostensibly suitable breeding habitat, this species has not been recorded nesting in or near the Plan Area, and it is unlikely to nest here (CNDDB 2022, Cornell Lab of Ornithology 2022). However, small numbers of tricolored blackbirds forage in the Plan Area (e.g., in grasslands and marsh/wetland habitats) during the nonbreeding season, such as in the Northeast Meadowlands and Charleston Retention Basin. |
| Willow flycatcher (*Empidonax traillii*) | SE (nesting) | This species occupies wet meadows and riparian habitats dominated by clumps of willow vegetation. They require patches of vegetation interspersed with open clearings in the tree canopy. An insectivore, the willow flycatcher captures most of its prey on the wing but also gleans insects from leaf surfaces (Sanders and Flett 1989). | Once locally common in riparian habitats throughout the Bay area in the twentieth century, this species no longer breeds in the Plan Area or surrounding Bay area (Bousman 2007b). Small numbers occur as regular migrants during the fall, and less so during the spring within the Plan Area region (Bousman 2007b). The species may be found during migration anywhere in the Plan Area with dense vegetation, typically near water, and it has been observed in Charleston Retention Basin, trees surrounding the Rengstorff House and golf course, vegetation surrounding Shoreline Lake, and Coast Casey Forebay (Cornell Lab of Ornithology 2022). |
| Bank swallow (*Riparia riparia*) | ST (nesting) | This species nests colonially and inhabits isolated places where fine-textured or sandy vertical bluffs or riverbanks are available in which to dig burrows 2 to 3 feet deep. Bank swallows forage for insects over open riparian areas, brushland, grassland, and cropland. | This species is not known to breed within the Plan Area or surrounding region and has never been common in Santa Clara County (Bousman 2007c). However, this species may occur in the Plan Area as a rare migrant in the spring and fall, and it has been observed foraging with other swallow species around Coast Casey Forebay in the Plan Area and Charleston Slough. |
| Salt marsh harvest mouse (*Reithrodontomys raviventris*) | FE, SE | Primary habitat for this species consists of pickleweed-dominated areas in the upper regions of tidal marshes. The species is also found in diked and muted tidal marshes dominated by pickleweed, and can also be found in dense vegetation within brackish marshes in the South Bay. | The salt marsh harvest mouse occurs in tidal and nontidal salt and brackish marsh habitats. Suitable habitat where the species may occur in the Plan Area is found primarily within Mountain View and Stevens Creek Tidal Marsh areas, in Coast Casey Forebay, and possibly along Permanente Creek and in the nontidal brackish water /marsh habitat in a ditch east of the Northeast Meadowlands. |
| **California Species of Special Concern** | | | |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| Northwestern pond turtle (*Actinemys marmorata*) | CSSC | Permanent or nearly permanent ponds or slack-water pools with suitable basking sites (such as logs, rocks, mats of floating vegetation, or open mud banks) are an important habitat component for this species. In Santa Clara County, all perennial creeks, many intermittent creeks, and most ponds that are not completely isolated by development have some potential to support the northwestern pond turtle. Non-irrigated grasslands, uplands and ruderal grassland areas are used as nesting sites. | Suitable aquatic habitat for the species is present in the freshwater golf course pond at Shoreline, where it has been observed on one occasion. Non-irrigated grassland habitats that surround the golf course provide ostensibly suitable nesting habitat for pond turtles. The Charleston Retention Basin provides potential aquatic habitat for the species. However, the isolation of the basin from other nearby aquatic habitats, such as Stevens Creek located east of the basin, and the extensive busy roadways and other urban barriers most likely precludes this species from the basin. |
| Redhead (*Aythya americana*) | CSSC (nesting) | This diving duck species nests in freshwater wetlands with emergent vegetation such as tall stands of cattails and tules surrounding areas of deep, open water. Alkaline marshes are also used as nesting sites. The species forages primarily on submergent aquatic vegetation, but will also take small clams, snails, and aquatic insect larvae (Beedy and Deuel 2008). | The redhead nests in large wetland complexes in northeastern California and in the Central Valley, but does not nest in the Bay Area (Beedy and Deuel 2008). Large numbers of redheads migrate to and winter on large bodies of water within the Plan Area region, where they forage and rest. The species may occur occasionally in Shoreline Lake, but is typically seen in large numbers in Charleston Slough and the former salt ponds, which are located immediately north of the Plan Area at Shoreline. |
| American white pelican (*Pelecanus erythrorhynchos*) | CSSC (nesting colony), BCC | The species breeds in large colonies on islands, typically surrounded by rich foraging waters and far removed from most human disturbance and land predators. The species typically forages in cooperative flocks in open water areas of marshes, lakes, and shallow inland waters, where sufficient prey (i.e., fish) is readily available (Shuford 2008). | The American white pelican breeds in far northeastern California, primarily in the Klamath Basin, but does not breed in the Bay Area (Shuford 2008). Small numbers of nonbreeding individuals occur in the South Bay during the summer; larger numbers occur during the fall and winter, where they forage and roost throughout large bodies of water. The species occurs regularly at Shoreline Lake and may use the small island at the lake as a roosting site during the fall and winter. It is also observed regularly in the former salt ponds and Charleston Slough, located immediately north of the Plan Area at Shoreline. The small island located in Charleston Slough, which is part of the Plan Area, would provide a suitable roosting site with proper vegetation management. |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| Black skimmer (*Rhynchops niger*) | CSSC (nesting colony), BCC | In the San Francisco Bay area, black skimmers typically nest among Forster's terns, on small dredge-spoil islands (including both bare islands and islands vegetated, sometimes heavily, with pickleweed) in saline managed ponds. Exact nesting locations vary from year to year. The species' unique physiology, with the lower mandible longer than the upper mandible, allows this species to fly over the surface of the water, "skimming" for small fish. | Once considered a rare breeder in the Plan Area region, the species has nested most years on the small island at Shoreline Lake in the Plan Area since 2013, and numbers are increasing. The species forages within the lake and in the adjacent former salt ponds and Charleston Slough, located north of the Plan Area. The small island located in Charleston Slough, which is part of the Plan Area, would provide a suitable roosting and possibly nesting site with proper vegetation management. |
| Northern harrier (*Circus hudsonius*) | CSSC (nesting) | Nests in marshes and moist fields with tall vegetation and sufficient moisture to inhibit accessibility of nest sites to predators. Forages over open areas. | This species nested in the Mountain View Tidal Marsh in 2018, and could potentially nest in Stevens Creek Tidal Marsh as well. The species is known to forage over the aforementioned areas, as well as Coast Casey Forebay and grasslands throughout the Plan Area. |
| Burrowing owl (*Athene cunicularia*) | CSSC, BCC | Nests and roosts in open grasslands and ruderal habitats with suitable burrows, usually those made by California ground squirrels. | Burrowing owls are currently known to nest, roost, and forage within grassland habitats in the Plan Area. Suitable habitat for nesting, roosting, and/or foraging is present in the Northeast Meadowlands, kite flying lot, Vista Slope, North Shore area, Crittenden Hill, and multiple locations on the golf course within the Plan Area at Shoreline. All these areas provide suitable burrowing owl habitat in the form of California ground squirrel burrows within grassland. Burrowing owls are considered to be year-round residents within the Plan Area and occur as breeders, over-wintering migrants, or foragers. Figure 3 shows the location of the burrowing owl preserve and all mitigation areas, as well as owl concentration locations in the Plan Area. |
| Vaux's swift (*Chaetura vauxi*) | CSSC (nesting), BCC | Nests both in small colonies and as single pairs, occupying cavities in redwoods and other trees (Hunter and Mazurek 2003). They also occasionally use artificial cavities such as chimneys (Hunter 2008). They forage on flying insects in the air above a variety of habitats and can often be seen far from the nearest suitable breeding habitat (Hunter 2008). | In the South Bay, Vaux's swifts breed primarily in snags in the forests of the Santa Cruz Mountains and in residential chimneys in the foothills of the Santa Cruz Mountains (Rottenborn 2007a). The Plan Area is outside the species' breeding range, but Vaux's swifts are aerial foragers that occur in low numbers throughout Santa Clara County during migration, and have been observed foraging over Coast Casey Forebay, Shoreline Lake, Mountain View and Stevens Creek Tidal Marshes, and the Northeast Meadowlands (Cornell Lab of Ornithology 2022). |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| Loggerhead shrike (*Lanius ludovicianus*) | CSSC | Breeds in areas providing dense, low trees or shrubs for nesting and extensive open grassland for foraging. | Although loggerhead shrikes historically bred at the upland/baylands interface along the edges of the Bay in Santa Clara County, the species' local populations have declined, and the species has apparently disappeared as a breeder from the Plan Area and its vicinity. Currently, loggerhead shrikes occur in the Plan Area only as scarce migrants and nonbreeding visitors to extensive grasslands such as the Northeast Meadowlands and Vista Slope. |
| Yellow warbler (*Setophaga petechia*) | CSSC (nesting) | Prefers riparian corridors with an overstory of mature cottonwoods and sycamores, a midstory of box elder and willow, and a substantial shrub understory (Bousman 2007d), particularly in areas with more open space adjacent to the riparian habitat. Yellow warblers construct open-cup nests in upright forks of shrubs or trees in dense willow thickets or other dense vegetation (Lowther et al. 1999). | Yellow warblers are uncommon breeders in Santa Clara County because of loss of riparian habitat, invasion by nonnative plants, development along riparian corridors, and the abundance of the brown-headed cowbird (*Molothrus ater*). However, small numbers of yellow warblers still breed in remnant riparian areas within Santa Clara County (Bousman 2007e). This species most likely does not breed within the Plan Area; however, ostensibly suitable nesting habitat occurs in the Charleston Retention Basin. Nonetheless, the species occurs as common fall migrant and less common spring migrant in the Plan Area and has been observed in numerous locations within the Plan Area. In addition to foraging in a variety of trees and shrubs, fall migrant yellow warblers often forage in patches of fennel. |
| San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) | CSSC, BCC | Breeds primarily in fresh and brackish marshes, although it nests in salt marsh habitats that support tall vegetation (Guzy and Ritchison 2020). The species builds open-cup nests, low in the vegetation, and nests from mid-March through late July (Guzy and Ritchison 2020, Gardali and Evens 2008). | This year-round resident is known to nest and forage within the Plan Area including Coast Casey Forebay, Mountain View and Stevens Creek Tidal Marshes, Permanente Creek, Charleston Retention Basin, within the freshwater wetland found south of the golf course, and within the tall vegetation surrounding the golf course ponds (CNDDB 2022, Cornell Lab of Ornithology 2022). |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| Alameda song sparrow (*Melospiza melodia pusillula*) | CSSC, BCC | Prime habitat for the species consists of large areas of tidally influenced salt marsh, dominated by cordgrass and gumplant and intersected by tidal sloughs, offering dense vegetative cover and singing perches. The species nests as early as March, but peak nesting activity most likely occurs in May and June. | The primary habitat for the *pusillula* subspecies of song sparrow is fully tidal salt marsh, where these birds nest in areas of taller, dense herbaceous vegetation, primarily along tidal sloughs. Suitable nesting habitat for the species in the Plan Area is found along Permanente Creek and in Mountain View and Stevens Creek Tidal Marsh; this species may also nest in Coast Casey Forebay, though it is unknown whether song sparrows breeding in brackish marshes in the Plan Area represent this special-status subspecies or the more common, widespread, freshwater-associated race. The species is a year-round resident. |
| Grasshopper sparrow (*Ammodramus savannarum*) | CSSC (nesting) | The grasshopper sparrow breeds in open, short grasslands with scattered clumps of shrubby vegetation, constructing domed ground nests with grasses in patches of dense vegetation (Vickery 1996, Sutter and Ritchison 2005, Unitt 2008). The species typically breeds from mid-March to August, after which they migrate to wintering grounds that are presumed to be in Mexico and Central America (Vickery 1996, Unitt 2008). | Grasshopper sparrows breed in extensive grasslands within the Santa Cruz Mountains and Diablo Ranges, on either side of San Francisco Bay. In lowland areas such as the Plan Area, this species occurs as a very scarce migrant (Cornell Lab of Ornithology 2022). It could potentially occur in grassland or other open habitats (e.g., along Permanente Creek and at Coast Casey Forebay) throughout the Plan Area, albeit in very low numbers. |
| Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*) | CSSC | The *alaudinus* subspecies occurs primarily in coastal and bayshore areas, and is found year-round in low-elevation, tidally influenced habitat, specifically pickleweed-dominated salt marshes, and in grasslands and ruderal areas. Along the edge of the Bay, levee tops with short vegetative growth and levee banks with high pickleweed are the preferred nesting habitat of this sparrow (Fitton 2008). | The species occurs as an uncommon breeder around Coast Casey Forebay but breeds more commonly in and around the Mountain View and Stevens Creek Tidal Marshes. Nonbreeding individuals and foragers occur in grassland or other open habitats (e.g., along Permanente Creek and at Coast Casey Forebay) throughout the Plan Area. |
| Western red bat (*Lasiurus blossevillii*) | CSSC | Breeds in riparian woodlands and other forest types, mostly outside the San Francisco Bay area. Roosts in the foliage of trees. | Western red bats do not breed in the South Bay, but small numbers could occur in the Plan Area during migration and winter, foraging over any habitats and roosting in the foliage of trees around the Charleston Retention Basin, and possibly in other areas. |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| Salt marsh wandering shrew (*Sorex vagrans halicoetes*) | CSSC | Occurs primarily in medium-high, wet tidal marsh (6 to 8 feet above mean sea level) with abundant driftwood, plentiful invertebrate prey, and dense cover. Has also been recorded in diked marshes. | The salt marsh wandering shrew historically was more widely distributed in the San Francisco Bay, but it is currently confined to salt marshes in the Plan Area region (Findley 1955). The species is occasionally captured during salt marsh harvest mouse trapping studies, but the difficulty in identifying it to species has precluded a better understanding of its current distribution in the South Bay. Suitable habitat for the species in the Plan Area may be found in Coast Casey Forebay, along Permanente Creek, and in Mountain View and Stevens Creek Tidal Marshes. |
| **State Fully Protected Species** | | | |
| American peregrine falcon (*Falco peregrinus anatum*) | SFP, BCC | Forages in many habitats; nests on cliffs and tall bridges and buildings. | Peregrine falcons occur as regular foragers, year round, though in low numbers, in and over open habitats throughout the Plan Area. The species nests to the east at Moffett Federal Airfield and on electrical towers in managed pond/tidal marsh habitats to the northeast, but it is not known or expected to nest in the Plan Area. |
| Golden eagle (*Aquila chrysaetos*) | SFP, BCC | Breeds on cliffs or in large trees (rarely on electrical towers); forages in open areas. | Nonbreeding golden eagles occasionally forage for ground squirrels and rabbits in grasslands in the Plan Area, primarily in the more extensive grasslands of the Northeast Meadowlands and Vista Slope. The species is not known or expected to nest in or near the Plan Area. |
| White-tailed kite (*Elanus leucurus*) | SFP | Nests in tall shrubs and trees; forages in grasslands, marshes, and ruderal habitats. Nonbreeding birds typically remain in the same area over the winter, although some movements do occur (Polite 1990). The presence of white-tailed kites is closely tied to the presence of prey species, particularly voles, and prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997). | White-tailed kites nested successfully in the Plan Area at Shoreline in 2018, 2019, and 2020 in the North Shore area and in a large tree in the parking lot of the boathouse at Shoreline Lake. In 2021 and 2022, they successfully nested just north of the Heron/Egret Rookery and south of the Charleston Retention Basin in two different coast redwoods. The species will forage over the grassland habitat of the Northeast Meadowlands and Vista Slope areas, as well as over open ruderal habitats found throughout the Plan Area. They may also occur as foragers over the golf course. Larger trees just about anywhere in the Plan Area could be used by nesting kites. |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| California brown pelican (*Pelecanus occidentalis californicus*) | SFP | Nests in coastal areas of southern California and areas to the south and disperses northward after nesting to coastal and estuarine areas along the Pacific Coast. Forages in tidal waters and managed ponds providing prey fish. | Small numbers forage in Shoreline Lake, where they occasionally roost on the island, and in managed ponds north of the Plan Area, from late summer to late winter. |
| **Watch List Species** | | | |
| California thrasher (*Toxostoma redivivum*) | WL | Typically associated with dense scrub, chaparral, or understory, mostly in more natural areas. Occurs in smaller numbers in suburban areas, primarily as a nonbreeder. | California thrashers occur in low numbers at Shoreline, mostly in areas with dense shrubs such as around Coast Casey Forebay or around Shoreline Lake, and the species has nested at Shoreline. Thrashers may occasionally occur throughout much of the Plan Area, albeit infrequently and in low numbers. |
| Cooper's hawk (*Accipiter cooperii*) | WL | Nests and forages in a variety of habitats providing suitable nest trees and avian prey. Breeding populations in urban areas have increased in recent decades. | Occurs in the Plan Area primarily as a migrant and winter resident, but small numbers may breed, using trees around the Charleston Retention Basin or elsewhere in the Plan Area for nesting. |
| Double-crested cormorant (*Nannopterum auritum*) | WL | In the South Bay, nests on levees between former salt ponds and on electrical towers over such ponds. Forages for fish in a wide variety of saline and freshwater, tidal and nontidal waterbodies. | Forages regularly at Shoreline Lake and may occasionally roost on the island there. Small numbers may also forage in the golf course pond. Does not breed in the Plan Area, though it nests on electrical towers near the mouth of Charleston Slough and over former salt ponds to the north and northeast. |
| Long-billed curlew (*Numenius americanus*) | WL, BCC | Breeds in marshes and fields far to the north of San Francisco Bay, forages on mudflats and in tidal marshes around the Bay during migration and in winter. | Occurs sparingly in the Plan Area due to the absence of extensive mudflats, foraging much more commonly in Charleston Slough and other areas with higher-quality foraging habitat. Occasionally forages in Coast Casey Forebay, and may forage in grassland habitats (particularly in winter when they are moist). |
| Osprey (*Pandion haliaetus*) | WL | Nests in trees and on electrical towers and other artificial structures at inland reservoirs, in coastal areas, and (in small numbers) within San Francisco Bay. | The nearest nesting location is on an electrical tower in Alviso to the northeast, and this species is not known or expected to nest in the Plan Area. Occurs as an uncommon forager, hunting for fish in Shoreline Lake or nearby former salt ponds. |
| Rufous hummingbird (*Selasphorus rufus*) | WL | Nests far to the north of San Francisco Bay but occurs in the Bay area as a common spring and fall migrant, foraging on nectar at flowers and on insects. | Uncommon spring and fall migrant where nectar sources are available in the Plan Area. |

| Name | *Status | Habitat and Ecology | Occurrence within the Plan Area |
|---|---|---|---|
| Sharp-shinned hawk (*Accipiter striatus*) | WL | Nests in forested habitats, usually in natural areas lacking regular human disturbance; forages in a variety of habitats. | Occurs in the Plan Area as a migrant and winter resident, where it forages for small birds in virtually all habitat types. Does not nest in urban or lowland areas in the South Bay. |

Key to Abbreviations:

Status: Federally Endangered (FE); Federally Threatened (FT); Federal Candidate for Listing (FC); State Endangered (SE); State Threatened (ST); State Fully Protected (SFP); California Species of Special Concern (CSSC); CDFW Watch List (WL); USFWS Bird of Conservation Concern (BCC).

Plan Area Boundary
1-mile Radius
CNDDB Records
Wildlife
Specific Location
Approximate Location
General Area
Aquatic
General Area
Critical Habitat
Green Sturgeon
Western snowy plover
Steelhead
Note: CTS = California Tiger Salamander

California Ridgway's rail
California Ridgway's rail
longfin smelt
salt-marsh harvest mouse
burrowing owl
Green Sturgeon
yellow rail
burrowing owl
California least tern
salt-marsh harvest mouse
saltmarsh common yellowthroat
salt-marsh harvest mouse
California Ridgway's rail
California least tern
saltmarsh common yellowthroat
saltmarsh common yellowthroat
burrowing owl
California black rail
California Ridgway's rail
black skimmer
burrowing owl
burrowing owl
California black rail
salt-marsh harvest mouse
saltmarsh common yellowthroat
saltmarsh common yellowthroat
burrowing owl
burrowing owl
California black rail
saltmarsh common yellowthroat
western pond turtle
CTS
yellow rail
burrowing owl
Steelhead

Moffett/Whisman Road
Midtown North / Palo Verde / Charleston Gardens
Midtown South / Ventura / Charleston Meadow
Monta Loma/Farley/Rock Street
San Antonio / Rengstorff
Bayshore
Shoreline Park
Shoreline Lake
Charleston Plaza
Costco
Rengstorff Center
Greenspot School
Don Secundino Robles Park
Jane Lathrop Stanford Middle School
J Pearce Mitchell Park
Ramos Park
Hoover Park
Keys School
Barron Park School
Juana Briones Elementary
Juana Briones Park
Monta Loma Elementary School
Girls Middle School
Cubberley Middle School
Theuerkauf Elementary School
Ohlone Elementary School
John Lucas Greer Park
Shoreline Amphitheater
Shoreline Golf Links
Charleston Center
Greenspot Center
Barron Creek
Adobe Creek
Stevens Creek
Permanente Creek
Whisman Station Park
Microsoft Research Lab
Google Charleston East
Google Bayshore
Google Landings
Google Charleston North
Google Bayview
Google Gradient
Google Shoreline
Google Crittenden
Google Main Campus
Google Classic
Google Village
Google Plaza
Google Pear
Google Huff
Google Inigo
Google Macon
Google Mayfield
Google Rengstorff
Google Amphitheatre
Google Charleston
Google Landings
Google Bayshore
Google Shoreline
Google Crittenden
Google Main Campus
Google Classic
Google Village
Google Plaza
Google Pear
Google Huff
Google Inigo
Google Macon
Google Mayfield
Google Rengstorff
Google Amphitheatre
Google Charleston

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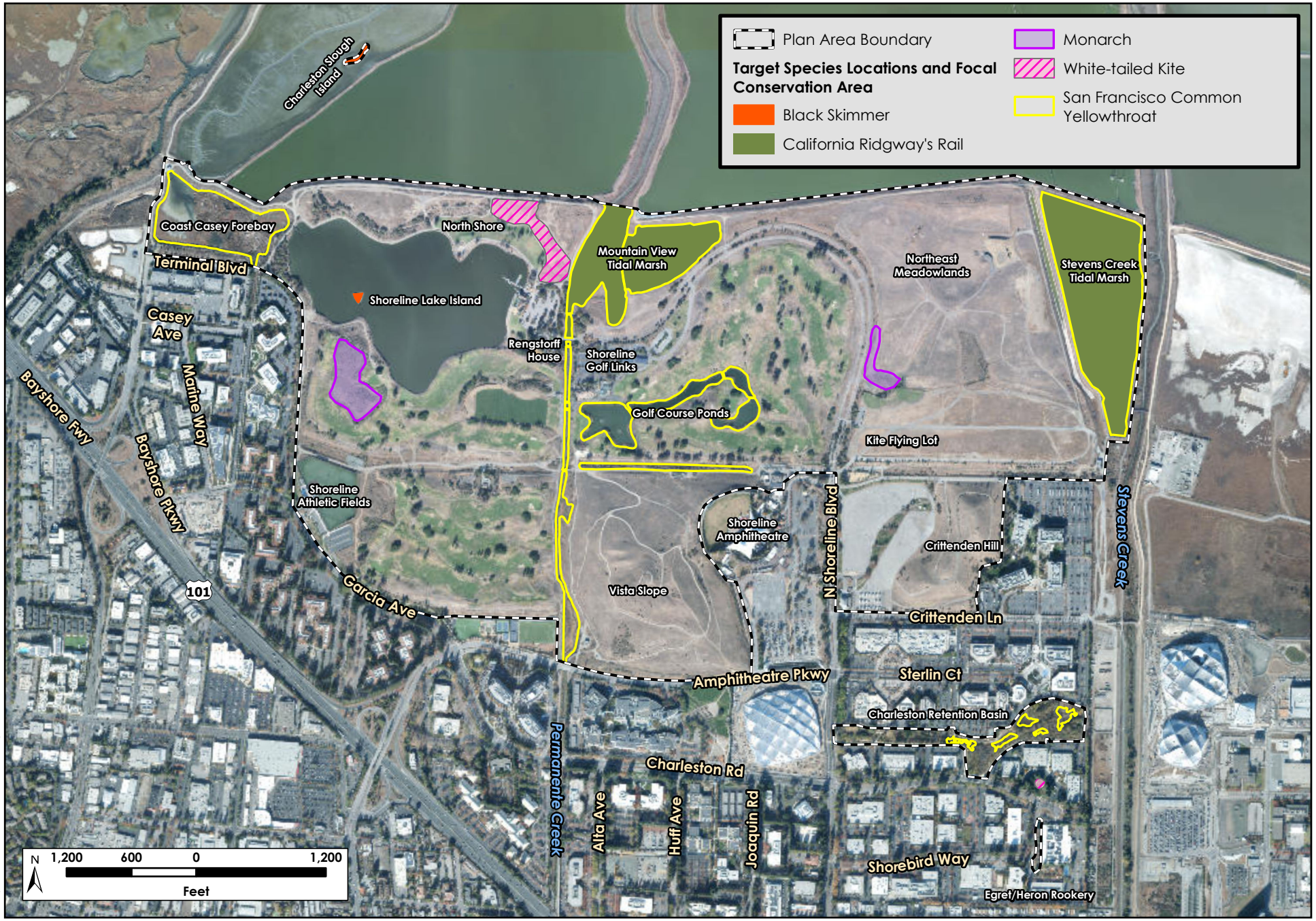
H. T. HARVEY & ASSOCIATES
Ecological Consultants

**Figure 4. CNDDB-Mapped Records of Special-Status Wildlife Species**
Shoreline Wildlife Management Plan
January 2023

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H. T. HARVEY & ASSOCIATES
Ecological Consultants

**Figure 5. Occurrence Locations and Focal Conservation Areas of Umbrella Species**

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H. T. HARVEY & ASSOCIATES
Ecological Consultants

**Figure 6. General Locations of Congdon's Tarplant**
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# Section 5. Locations of Nesting Birds and Sensitive Nesting Areas

This section discusses nesting birds, including the typical nesting season, a few species that represent exceptions to that nesting season, and measures to avoid and minimize disturbance of nesting birds.

## 5.1 Nesting Season

The typical nesting season for most birds that could breed in the Plan Area is often characterized as February 1 through August 31. In reality, most individuals of most bird species that nest in the Plan Area do not have nests with eggs until March or April. This is the case with most species that are present in the Plan Area year-round, and is definitely the case for long-distance migrants that winter far to the south (e.g., in Mexico or Central America) and do not arrive in the Plan Area until spring. Similarly, most nesting birds will have completed nesting by the end of June or mid-July. However, some birds may start nesting earlier than others, thus resulting in the February 1 start date to the typical nesting season. In addition, some birds may have young in the nest later than others, even within the same species. Late nesting often occurs in species that produce multiple broods per season or may occur when birds re-nest after one or more initial failed nesting attempts.

A few species could have active nests (nests with viable eggs or young) outside of this period. Barn owls, which are known to nest within the Plan Area, have an extended nesting period, with active nests occurring as early as late January and as late as the first of September (Bousman 2007e). The mourning dove may also have active nests as early as late January and continuing into the latter part of September (Bousman 2007f). Anna's hummingbirds may nest as late as November and December, and as early as January, in the Plan Area (Bousman 2007g). The rock pigeon (*Columba livia*), although a nonnative species, is protected by the California Fish and Game Code, and breeds year-round in the Plan Area. Both the red-shouldered hawk and red-tailed hawk may begin nest building as early as November and January, respectively (Rottenborn 2007b and 2007c), and thus, may be on active nests by around February 1 in the Plan Area.

In summary, the typical nesting season for birds in the Plan Area can be characterized as February 1 through August 31, with recognition that a few species may have nests in early January or late September, and very infrequently, some active nests may be present October through December.

## 5.2 Potential Nesting Locations and Sensitive Nesting Areas

A variety of common bird species nest throughout the different habitats in the Plan Area, as described above in Section 3. Below is a description of the types of raptors and non-raptors that breed in the Plan Area, and the locations where they may nest.

**Raptors**

A number of large trees on and adjacent to the Plan Area provide suitable nesting habitat for raptors, including the red-tailed hawk, red-shouldered hawk, Cooper's hawk, barn owl, and great horned owl. The large trees, such as the Fremont cottonwoods, that surround the historical Rengstorff House provide suitable nesting habitat for raptors. Other native and nonnative trees such as coast live oak, eucalyptus, Monterey cypress, and fan palms in the North Shore area, surrounding the boathouse of Shoreline Lake, and in locations on the golf course provide other attractive nesting sites for raptors. The large cottonwood and oak trees found in the Charleston Retention Basin and the London planetrees in the egret/heron rookery provide suitable nesting habitat for raptors. Northern harriers nest in extensive tidal marsh, such as the Mountain View and Stevens Creek Tidal Marshes, and burrowing owls nest in extensive grasslands.

**Non-Raptors**

The trees and locations described above also provide suitable nesting habitat for a variety of songbird species such as the American robin, bushtit, Bullock's oriole, and lesser goldfinch. Other small to medium sized trees and shrubs on and adjacent to the Plan Area provide nesting habitat for several of the bird species listed above in Section 3. Evergreen trees such as eucalyptus, coast redwood, European olive (*Olea eurpaea*), and coast live oak have leaves year-round, and will provide attractive nesting sites for birds early in the spring. Anna's hummingbirds initiating nests early in the year typically nest in evergreen trees (though they will occasionally construct nests in bare trees). In contrast, many deciduous trees such as black walnut (*Juglans nigra*) and London planetrees in the Plan Area will not provide nesting habitat for most birds until they leaf out later in the spring.

The dense stands of coyote brush, junipers, and other small to medium bushes and trees, like those found between Coast Casey Forebay and the west side of Shoreline Lake, provide suitable nesting sites for birds such as the California towhee, California scrub-jay, and northern mockingbird. Cavities in trees and snags in multiple locations in the Plan Area (i.e., North Shore, Rengstorff House, golf course, Charleston Retention Basin) provide nesting sites for cavity-nesting birds such as the chestnut-backed chickadee, Nuttall's woodpecker, tree swallow, and Bewick's wren.

Grassland habitats in the Plan Area provide nesting habitat for relatively few species, but burrowing owls and western meadowlarks (*Sturnella neglecta*) nest in these habitats, and red-winged blackbirds may nest in grasslands supporting taller, denser vegetation if left unmown. Barren areas with little to no vegetation, such as in the kite flying lot, and parking strips, gravel roads and pathways found throughout Shoreline provide nesting substrate for the killdeer (*Charadrius vociferus*). The dense stands of tules, cattails, and other emergent and terrestrial vegetation found along the banks of the golf course ponds and various locations within Charleston Retention Basin provide nesting sites for wetland associated birds such as the San Francisco common yellowthroat, marsh wren, green heron, American coot, gadwall, and common gallinule. Tidal marsh provides nesting habitat for relatively few species, though many of those nesting in such habitat are of conservation concern. The island habitat at Shoreline Lake provides nesting areas for black-necked stilts, American avocets, Forster's terns, black skimmers, and waterfowl such as the mallard and Canada goose.

Other potential nesting sites for non-raptor bird species are present on existing buildings and other structures found throughout the Plan Area. Virtually any building or other structure in the Plan Area has some potential to support nesting birds. Black phoebes (*Sayornis nigricans*), barn swallows, and cliff swallows construct mud nests on vertical walls just under roofs or other overhangs, and under bridges, and do not require a ledge or other horizontal structure to support the nest. For example, cliff swallows have built nests on the pumphouse located at the northwest end of Coast Casey Forebay and on the Maintenance Building, and they and barn swallows now nest under the pumphouse, entering through the trash rack. Structures that provide covered ledges or cavities may serve as nesting areas for other species, such as the mourning dove, western bluebird, and house finch.

**Sensitive Nesting Areas**

A number of locations within the Plan Area are considered sensitive nesting areas based on the concentration of nests and/or the sensitivity of the species and associated habitats in question, as follows:

- **Island Habitats** – The island at Shoreline Lake is considered sensitive nesting habitat for a number of species, including the black skimmer.
- **Wetland/Marsh Habitats** – Sensitive nesting habitat for wetland/marsh associated bird species is found around the margins of the golf course pond, along Permanente Creek, in Coast Casey Forebay, in the Mountain View and Steven Creek Tidal Marshes, and in the Charleston Retention Basin. These areas not only provide nesting sites for common wetland bird species, as described above, but also provide nesting habitat for special-status species such as the Alameda song sparrow, San Francisco common yellowthroat, California Ridgway's rail, and California black rail.
- **Riparian Habitats and Other Suitable Trees** – Sensitive nesting habitat for the white-tailed kite is present in the large trees located in the North Shore area, at the historical Rengstorff House, and in the riparian habitats of Charleston Retention Basin. Trees on the golf course or in other areas could also potentially support nesting kites. Riparian habitats at the Charleston Retention Basin support high densities and high diversity of nesting birds.
- **Grassland Habitats** – Sensitive nesting habitat for the burrowing owl is located in grasslands in the Northeast Meadowlands, Vista Slope, Crittenden Hill, and the additional mitigation and restoration sites on the golf course where burrowing owls are known to occur.
- **Heron/Egret Rookery** – A row of London planetrees along Shorebird Way on Google's Charleston Campus hosts a sensitive nesting rookery of black-crowned night herons, snowy egrets, and great egrets.

## 5.3 Potential Nesting Bird Impacts

The Plan Area provides multiple recreational opportunities (e.g., golfing, boating, biking, hiking, kite-flying, and wildlife observation) and is heavily used by thousands of people each week. Shoreline roadways, pathways, the golf course, Shoreline Lake, Rengstorff House, and other amenities and infrastructure require year-round maintenance and management. All this human activity during the avian nesting season has the potential to impact nesting birds. Impacts may involve physical disturbance/destruction of nests, eggs, or young, which

may occur when nests are physically contacted or handled or when the nesting substrate (e.g., vegetation or artificial structures) is modified. Birds may also be impacted less directly, such as when noise or human activity occurs in close proximity to nests; this can indirectly lead to the loss of eggs or young by causing abandonment of nests by the adults. Different species, and different pairs within a given species, have different tolerances of noise and human activity. At Shoreline, many nesting birds habituate to human activity, nesting in areas relatively close to noise and human presence. For example, birds nesting on the Shoreline Lake island, and at the Coast Casey Forebay pumphouse, are subject to the activities of humans in relatively close proximity to their nests, yet those birds tolerate such activity rather than abandoning their nests. However, if the type, proximity, and level of human activity changes while those birds have active nests – such as if a drone were to land on the Shoreline Lake nesting island, if photographers got too close to nesting swallows, or if maintenance or construction activities were to commence during the middle of the breeding season close to nesting birds – those birds may not tolerate activity levels that they perceive as a greater threat to their safety. In that case, the birds may abandon their nests. Examples of the types of activities that could lead to abandonment of active nests are provided below.

**Recreational Activities**

- Hiking off-trail into sensitive nesting habitats, which may lead to direct physical destruction of an active nest, or disturbance leading to abandonment of an active nest.
- Bringing dogs (which are prohibited at Shoreline) onto trails which can directly and/or indirectly impact active nests.
- The indirect disturbance of active nests on the island at Shoreline Lake by lake users (i.e., kayakers, wind-surfers) entering the buoy buffer zone that surrounds the island.
- Littering along trails and near sensitive nesting habitats, which can attract predators (i.e., gulls, common ravens [*Corvus corax*], American crows [*Corvus brachyrhynchos*], raccoons, or foxes) that can then prey upon active nests.
- Events that concentrate people in or near the Plan Area (e.g., the parking lots that surround the retention basin and the parking lots east of Crittenden Hill) and increase the potential for accumulation of litter that can attract predators.
- Playing loud music while hiking or biking through Shoreline, which may indirectly disturb sensitive nesting bird species.

**Maintenance and Management Activities**

- Roadway, parking lot, and trail maintenance may directly or indirectly disturb active ground nests of the killdeer; vegetation maintenance within these areas, such as in ruderal grasslands and sparse shrub and vegetated parking strips could potentially disturb active nests of killdeer and dark-eyed juncos (*Junco hyemalis*).
- Tree and shrub removal and trimming activities could directly and/or indirectly disturb an active nest in any tree, shrub, or other vegetation that needs maintenance.

- Mowing of grasses and weedy areas such as in the Vista Slope area, Northeast Meadowlands, Crittenden Hill and North Shore, along the margins of the golf course, and along roadways and trails throughout Shoreline could directly and indirectly disturb active nests of grassland bird species.
- Spraying of herbicides in ruderal and weedy areas, as well as in landscaped areas in developed sites could potential have a direct and/or indirect impact on active nests.
- Maintenance, repairs, or reconstruction of building exteriors, outbuildings, and other associated infrastructure (e.g., building eaves, pumphouse, etc.) could directly or indirectly impact active bird nests that are present.

## 5.4 Nesting Bird Avoidance and Minimization

The following measures will be followed to avoid and minimize impacts to nesting birds:

**Recreation Activities**

- Trail and bike pathway users should not leave established trails.
- Shoreline users should stay out of all wetland/marsh areas and burrowing owl preserves/mitigation sites.
- Shoreline users should adhere to rules prohibiting bringing pets to Shoreline.
- The disturbance-free buffer zone surrounding the Shoreline Lake nesting island will continue to be maintained, year-round, and buoys, ropes, and signs that are more conspicuous to boaters should be employed. This will reduce intrusion by boaters into the buffer zone and reduce disturbance of both nesting and roosting birds on the island.
- Signage should be provided at regular intervals around sensitive habitat areas instructing the public regarding rules protecting nesting birds. Increase the number and visibility of educational signs at the boat launch area directing boaters to respect the buffer around the island.
- Any new recreation activities or areas should be sited away from high-quality, high-use nesting bird areas.

**Maintenance and Management Activities**

- All maintenance and management activities should follow the avoidance and minimization measures as outlined under Section 12.2, where applicable, based upon project activities and time of year.
- Whenever feasible, maintenance and management activities should be planned to occur outside the avian nesting season to avoid conflicts with nesting birds. This is especially important for activities that involve significant removal or modification of nesting habitat, such as vegetation removal.
- In general, pre-activity surveys for nesting birds should be conducted by a qualified biologist prior to any maintenance or management work activities on buildings or other infrastructure, maintenance and/or removal of trees and shrubs, or mowing of grassland areas that occurs between January 15 and September 15 (for raptor species) and between February 1 and August 31 (for non-raptor species) and year round for burrowing owls. These surveys should be conducted no more than seven days prior to

the initiation of these activities in any given location within the Plan Area. During each survey, a biologist will inspect all potential nesting habitats (e.g., trees, shrubs, and buildings) within the work area; within 300 ft of the work area for raptor nests; and within 100 ft of the work area for nests of non-raptors.

- If an active nest (i.e., a nest with eggs or young, or any completed raptor nest attended by adults) is found sufficiently close to work areas to be disturbed by these activities, a biologist shall determine the extent of a disturbance-free buffer zone to be established around the nest based on established rules, regulations, and legal precedents. Typical buffer zones are 300 ft for raptors and 100 ft for non-raptors. However, a biologist may determine that a reduced buffer is appropriate in some instances. For example, topography, buildings, or vegetation that screen a nest from the work area, or very high existing levels of disturbance (indicating the birds' tolerance to high levels of human activity), may indicate that a reduced buffer is appropriate. No new activities (i.e., work-related activities that were not ongoing when the nest was established) should occur within the buffer as long as the nest is active. Activities may also occur closer to active nests if a qualified biologist monitors the behavior of the birds prior to commencement of the activity, to establish the birds' baseline behavior, and then as the activity begins; if the birds show no evidence that they are disturbed by the activity, then it may continue with periodic monitoring by a qualified biologist. In addition to the typical buffers that should be maintained around active nests of raptors and non-raptors, the current buffer zone should be maintained around the islands in Shoreline Lake and Charleston Slough during the breeding season. During the nonbreeding season, the same 100-ft buffer should remain, which will limit the disturbance level to birds that may be using the islands for roosting and refugia during the fall and winter.
- If activities need to occur during the breeding season in areas where nesting birds are expected to occur, the City could consider reducing habitat suitability prior to the nesting season by removing old nests and removing or modifying the nest substrate (e.g., vegetation removal, or installation of structures to block nesting sites) to discourage birds from establishing nests in areas where they could be impacted by, and therefore could constrain, the anticipated management or maintenance activities.

# Section 6. Umbrella Species Conservation

This section includes specific conservation goals and recommendations for the five umbrella species: the black skimmer, California Ridgway's rail, white-tailed kite, San Francisco common yellowthroat, and monarch butterfly and the respective habitats that they represent. This section describes these species' prime breeding and foraging locations and recommends conservation measures and vegetation enhancements at these sites. Figure 5 shows the prime locations of these species' occurrence within the Plan Area.

## 6.1 Black Skimmer

### 6.1.1 Ecology and Occurrence at Shoreline

The black skimmer is a colonial nester that requires ground nesting habitat that is isolated from terrestrial predators and other disturbances. Black skimmers typically nest among Forster's terns, black-necked stilts, American avocets, and Caspian terns, although they are known to form colonies by themselves (Molina 2008). The species nests on beaches and islands (including both bare islands and islands vegetated, sometimes heavily, with pickleweed), and in the South San Francisco Bay area, the species nests almost exclusively in saline managed ponds. The nest is a simple saucer-shaped depression scraped into the sandy substrate, with no material added to it (Gochfeld et al. 2020). Black skimmers lay up to four eggs and the incubation period is around 21-25 days. After hatching, the semi-precocial chicks stay in or near to the nest for the next five days, after which they start to move around in the colony, while their parents feed them with fish, until they fledge after about four weeks (Gochfeld et al. 2020). The species' unique physiology, with the lower mandible longer than the upper mandible, allows this species to fly over the surface of the water, "skimming" for small fish.

The black skimmer was considered a rare nonbreeding visitor to the San Francisco Bay area until the mid-1990s. In 1994, one pair of black skimmers was documented nesting at Pond AB2, north of Moffett Field in Mountain View, and a second pair nested at Hayward Regional Shoreline in Alameda County (Layne et al. 1996). Since 1994, black skimmers have occurred in the South Bay every year, nesting at several additional sites. Black skimmers first nested on the island in Shoreline Lake in 2013; the number of nesting pairs there fluctuated from zero to two until 2019, when nine pairs nested on the island. Numbers have continued to increase, to 22 pairs in 2020 and approximately 50 nesting pairs in 2021 and 2022. Black skimmers forage for fish in the lake, nearby in Charleston Slough and managed ponds, and in the Bay north of the Plan Area. The small island located in Charleston Slough, which is part of the Plan Area, would provide a suitable roosting and possibly nesting site with proper vegetation management, though skimmers do not currently use that island due to the height and density of vegetation.

The black skimmer is considered an umbrella species for island-nesting species such as Forster's terns, black-necked stilts, and American avocets; island-roosting species, which include the American white pelican, California brown pelican, and a variety of gulls, ducks, and shorebirds; and species foraging in Shoreline Lake,

which include a number of species of gulls, terns, grebes, cormorants, ducks, geese, and other waterbirds. Thus, providing habitat enhancements for the black skimmer will also benefit these additional bird species.

### 6.1.2 Conservation Goals

Conservation goals for the black skimmer at Shoreline are as follows:

- Maintain the size, and suitability of habitat on, the Shoreline Lake island so that the island continues to support a viable breeding population of black skimmers.
- Avoid excessive human disturbance of the nesting colony at Shoreline Lake.
- Maintain suitable foraging habitat in Shoreline Lake.
- Establish the Charleston Slough island as productive nesting habitat through vegetation management measures.

### 6.1.3 Habitat Enhancement and Management Measures

Habitat enhancement and management measures for the black skimmer are as follows:

- Current water management in Shoreline Lake provides suitable conditions for fish that in turn furnish prey for black skimmers. Such water management will continue.
- The following management measures will be considered for the nesting island in Shoreline Lake:
    - Maintain the disturbance-free buffer zone surrounding the nesting island, year-round, and employ buoys, ropes, and signs that are more conspicuous to boaters. This will reduce intrusion by boaters into the buffer zone and reduce disturbance of both nesting and roosting birds on the island.
    - Increase the number and visibility of signs at the boat launch area directing boaters to respect the buffer around the island.
    - During the nonbreeding season (September 1 through January 31), remove some vegetation to maintain low-statured, sparsely vegetated areas interspersed between sandy soils for nesting. Every January and February, Shoreline personnel remove invasive weeds from the Shoreline Lake island using weed trimmers. They then place mostly sand and some pea gravel in prime areas on the island where frames have been installed to stabilize the ground substrate, which black skimmers then use as nesting grounds. This has proven to be very successful, as each of these frames have been used consistently by nesting skimmers.
    - Decrease the rate of bank erosion of the island by employing basic principles and techniques of bank stabilization such as:
        - Building up a gradual slope on the banks of the islands with a combination of imported soils, tree logs, gravel, and/or riprap, so as to be able to absorb the energy of the waves that over-time slowly erodes the banks of the islands.
        - On top of the built up banks and at the edges of the islands, plant low-growing, native, salt-tolerant vegetation such as saltgrass and Pacific pickleweed.

        - Erosion control for the island will require fill of jurisdictional waters within Shoreline Lake, thus necessitating Clean Water Act Section 404/401 permits from the USACE and San Francisco Bay RWQCB.
    - Continue monitoring the black skimmer colony for new threats, such as new forms of human disturbance (e.g., drones); excessive predation by gulls, common ravens, and other predators; and colonization by California gulls, which may outcompete skimmers for nesting sites in addition to eating skimmer eggs and chicks, and to track reproductive success.
- Reduce and/or eliminate refuse and trash around Shoreline Lake, which could attract and subsidize the diets of species that could then prey on black skimmers. Provide signage indicating the importance of preventing litter (especially involving food waste), provide adequate waste receptacles that are self-closing, and empty those receptacles before they fill. To further reduce and/or eliminate predator pressure from nonnative and nuisance wildlife species, refer to guidelines and best management practices as outline under Section 7.2 below.

Some vegetation management has been conducted in the past on the island in Charleston Slough. However, the slough is tidal, creating logistical challenges to crews trying to access the island on a regular basis to control vegetation. Thus, the island has become overgrown with vegetation over the past few years. Although the timing of tides to allow vegetation crews to get out to the island, and back before the tide goes out, may be challenging, vegetation and substrate management needs to occur more intensively on the Charleston Slough island as follows:

- Consider the viability and resources needed to manage invasive vegetation on the island.
- Modify the substrate of the island by adding some combination of salt, sand, shells, and pebbles to inhibit plant growth. As on the island in Shoreline Lake, these materials can be added in wood frames to help stabilize the nesting substrate and provide attractive nest sites for birds.
- Periodically remove vegetation from the island so that vegetation is low-statured and sparse, thus providing some cover for nesting birds without becoming so tall and dense as to preclude use of the island by nesting terns, skimmers, and shorebirds, and by roosting waterbirds.

Given the success of vegetation and substrate management on the Shoreline Lake island in attracting and supporting nesting black skimmers, the enhancement of the Charleston Slough island would provide an additional nesting area for the black skimmer and would assist in increasing their population numbers in the Plan Area and the South Bay as a whole.

## 6.2 California Ridgway's Rail

### 6.2.1 Ecology and Occurrence at Shoreline

The California Ridgway's rail is a secretive marsh bird that is endemic to the Bay Area and is typically found in the intertidal zone and sloughs of salt and brackish marshes dominated by pickleweed, cordgrass, gumplant, saltgrass, and adjacent upland refugia. The species is dependent upon complex networks of tidal channels for

foraging and movement. Slightly higher-elevation areas adjacent to or within these marshes, particularly those supporting tall, dense vegetative cover, are also important for predator avoidance during high tides. The species does not occur in muted tidal or diked salt marshes. In the Bay Area, the Ridgway's rail breeding season, including pair bonding and nest construction, may begin as early as February (Evens and Page 1983). The end of the breeding season is typically defined as the end of August, which corresponds with the time when eggs laid during re-nesting attempts have hatched and young are mobile. The Ridgway's rail builds a bowl shaped platform nest of marsh vegetation and detritus (Harvey 1988, Foerster 1989). Average clutch size is eight eggs and the incubation period is approximately 29 days (Eddleman and Conway 2020). The semiprecocial chicks will follow the adults while foraging, and parental care usually lasts until the fifth or sixth week after hatching (Eddleman and Conway 2020). California Ridgway's rails typically feed on benthic invertebrates, but their diet is wide ranging, and includes seeds, fish, and occasionally small mammals.

Because California Ridgway's rails spend most of their lives on the ground and never fly very high (or fast), they rely heavily on vegetative cover to conceal them from predators. They are subject to predation from a variety of avian predators, including hawks, falcons, and owls, as well as mammalian predators such as red and gray foxes, coyotes, and feral cats. Common ravens, American crows, California gulls, raccoons, and other species may eat rail eggs and chicks.

California Ridgway's rails have been seen and heard in the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh (CNDDB 2022, Cornell Lab of Ornithology 2022). Both locations provide high-quality habitat with tidal channels, and the species is expected to nest in both locations. Ridgway's rails may also forage within Permanente Creek a short distance upstream from the Mountain View Tidal Marsh, though the narrow nature of the channel and the presence of bridges over the creek would inhibit rails from wandering very far upstream.

The California Ridgway's rail is considered an umbrella species for animals associated with tidal marsh habitats, including the California black rail, salt marsh harvest mouse, salt marsh wandering shrew, northern harrier, Alameda song sparrow, Bryant's savannah sparrow, marsh wren, Virginia rail, sora, and several additional species of sparrows that forage in tidal marshes during migration and winter. Thus, providing habitat enhancements for the California Ridgway's rail will also benefit these additional wildlife species.

### 6.2.2 Conservation Goals

- Maintain or enhance habitat quality for, and populations of, California Ridgway's rails within and adjacent to the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh.
- Minimize the potential for human disturbance of rails within the Mountain View and Stevens Creek Tidal Marshes.
- Minimize predation on California Ridgway's rails by discouraging activities that support predators.

### 6.2.3 Habitat Enhancement and Management Measures

Habitat enhancement and management measures for the California Ridgway's rail are as follows:

- Install "Do Not Enter – Sensitive Habitat Area" signage along the edges of trails near the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh to discourage people from entering these areas. All new sign posts should be designed to minimize their use as avian predator perches (e.g., they should have conical tops or otherwise preclude perching).
- Do not construct new areas of high human activity, such as overlooks, benches, or picnic facilities, close to the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh to avoid increasing human activity near this species' habitat.
- Provide new and/or additional trash receptacles along trails and pathways that are near the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh to minimize the amount of refuse, which can attract unwanted terrestrial and avian predators. Provide signage indicating the importance of preventing litter (especially involving food waste), provide adequate waste receptacles that are self-closing, and empty those receptacles before they fill. To further reduce and/or eliminate predator pressure from nonnative and nuisance wildlife species, refer to guidelines and best management practices as outline under Section 7.2 below.
- Provide visual and physical buffers between adjacent trails and pathways and the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh by planting native vegetation such as saltbush, coyote brush, and other plants. These buffers are not intended to remove any currently accessible areas from public access, but rather would discourage people from entering sensitive habitats.
- Plant additional marsh/upland transition vegetation upslope from existing marsh/transition zone habitat. In particular, planting gumplant, coyote brush, and other dense vegetation would provide cover for California Ridgway's rails during king tides.
- Any required vegetation maintenance, such as mowing around the edges of the trails and pathways that are adjacent to the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh, should avoid, to the extent feasible, the California Ridgway's rail nesting season (February 1 through August 31). Vegetation should not be maintained down to the edges of tidal marsh; rather, adequate upland transition zone vegetation should be allowed to remain to provide high-tide refugia for California Ridgway's rails.
- Measures to minimize adverse effects of lighting on sensitive species will be implemented as described in Section 3.2.5.

## 6.3 White-tailed Kite

### 6.3.1 Ecology and Occurrence at Shoreline

White-tailed kites are year-round residents in the Plan Area, establishing nesting territories that encompass open areas with healthy prey populations, and which provide suitable snags, shrubs, trees, or other nesting substrates (Dunk 2020). Nonbreeding birds typically remain in the same area over the winter, although some movements do occur (Polite 1990). The presence of white-tailed kites is closely tied to the presence and abundance of prey species, particularly voles, and prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997). Nest trees range in size from relatively

large trees, such as coast redwoods to smaller shrubs less than 10 ft tall, such as coyote brush and saltbush (Dunk 2020), all of which occur within the Plan Area. The nest is built by both sexes and is composed of small twigs and lined with grass, hay, or leaves (Dunk 2020). Typical clutch size is four eggs and the incubation period is approximately 30 days. The young typically fledge and take their first flight, 4-5 weeks after hatching (Dunk 2020).

White-tailed kites tend to be more common in less developed portions of the region that contain extensive open grassland, ruderal, or agricultural habitats. However, several pairs are likely present in the Plan Area. The species successfully nested just north of the Heron/Egret Rookery and south of the Charleston Retention Basin in two different coast redwoods in 2021 and 2022. They also nested successfully in the Plan Area at Shoreline in 2018, 2019, and 2020 in the North Shore area and in a large tree in the parking lot of the boathouse at Shoreline Lake. The Plan Area at Shoreline provides wide open grassland areas in the Northeast Meadowlands and Vista Slope where the species can forage. White-tailed kites may also occur over any ruderal habitats and occasionally across the golf course as foragers. The larger trees in the Charleston Retention Basin and that surround Rengstorff House also provide quality nesting sites for the species, and it is possible that trees on the golf course or elsewhere in the Plan Area could be used for nesting.

The white-tailed kite is considered an umbrella species for a variety of birds, including raptors and non-raptors, that use trees throughout the Plan Area, as well as for grassland-associated animals. Thus, providing habitat enhancements for the white-tailed kite will also benefit these additional wildlife species.

### 6.3.2 Conservation Goals

- Protect existing trees that white-tailed kites have used historically for nesting and may use again for nesting or as communal roosting sites in the North Shore area.
- Continue to manage grasslands to provide suitable foraging habitat and prey availability for white-tailed kites.
- Minimize human disturbance of white-tailed kite nests.

### 6.3.3 Habitat Enhancement and Management Measures

Habitat enhancement and management measures for the white-tailed kite are as follows:

- To encourage white-tailed kites to use historical nesting sites in the North Shore area, protect existing trees and shrubs in this area and plant new trees and shrubs that are in compliance with landfill regulations and are sited in locations that do not interfere with landfill or other oversight body guidelines such as the Local Enforcement Agency for California Department of Resource, Recycling and Recovery for managing landfills, and post closure sites. Newly planted trees and shrubs can provide suitable nesting and roosting sites for the species. In addition, remove any non-authorized trails through the North Shore area to decrease the level of human disturbance close to nest trees.

- Reduce and/or eliminate chemical pollutants (i.e., pesticides, herbicides) in foraging areas such as the Northeast Meadowlands and Vista Slope area to increase the availability of prey such as California vole and deer mice and avoid secondary poisoning of kits and other raptors.
- When Shoreline personnel become aware of an active kite nest, implement any feasible measures (e.g., temporary trail closures or signage) to avoid human disturbance of the nest.
- Vegetation and tree maintenance (e.g., pruning branches) conducted during the white-tailed kite breeding season (January 15 through September 15) near trees where the species may occur will follow avoidance and minimization measures, as outlined in Section 12.2 below, as applicable.

## 6.4 San Francisco Common Yellowthroat

### 6.4.1 Ecology and Occurrence at Shoreline

The San Francisco common yellowthroat inhabits emergent vegetation and other dense vegetation in and near wetland and riparian habitats, including fresh and brackish marshes and moist floodplain vegetation supporting dense stands of rushes, cattails, willows, and other emergent vegetation (Nur et al. 1997, Menges 1998, Gardali and Evens 2008). The San Francisco common yellowthroat breeds primarily in fresh and brackish marshes, although it nests in salt marsh habitats that support tall vegetation (Guzy and Ritchison 2020). This subspecies builds open-cup nests, low in the vegetation, and nests from mid-March through late July (Guzy and Ritchison 2020, Gardali and Evens 2008). Typical clutch is four eggs with a short incubation period of approximately 12 days. The young fledge after 8-10 days. Because common yellowthroats use dense, low habitats close to the ground, they are subject to predation by red and gray foxes, feral cats, and raccoons, in addition to raptors.

The San Francisco common yellowthroat is a year-round resident known to nest within the Plan Area in Coast Casey Forebay, Mountain View and Stevens Creek Tidal Marshes, along Permanente Creek, in the Charleston Retention Basin, within the freshwater wetland found south of the golf course, and within the tall vegetation surrounding the golf course ponds (CNDDB 2022, Cornell Lab of Ornithology 2022). It also likely nests in the nontidal freshwater wetland along the High Level Ditch north of Vista Slope.

The San Francisco common yellowthroat is considered an umbrella species for a variety of birds, mammals, and amphibians, as well as the northwestern pond turtle, that occur in nontidal brackish and freshwater habitats. Thus, providing habitat enhancements for the San Francisco common yellowthroat will also benefit these additional wildlife species.

### 6.4.2 Conservation Goals

- Maintain or enhance habitat quality for San Francisco common yellowthroats within suitable nesting habitat (nontidal freshwater pond, nontidal freshwater wetland, nontidal brackish marsh, and tidal marsh).
- Minimize the potential for human disturbance of San Francisco common yellowthroats.

- Minimize predation on San Francisco common yellowthroats by discouraging activities that support predators.

### 6.4.3 Habitat Enhancement and Management Measures

Habitat enhancement and management measures for the San Francisco common yellowthroat are as follows:

- Install "Do Not Enter – Sensitive Habitat Area" signage along the edges of trails and golf course areas near nontidal freshwater pond, nontidal freshwater wetland, nontidal brackish marsh, and tidal marsh habitats to discourage people from entering these areas. All new sign posts should be designed to minimize their use as avian predator perches (e.g., they should have conical tops or otherwise preclude perching).
- Do not construct new areas of high human activity, such as overlooks, benches, or picnic facilities, close to suitable habitat to avoid increasing human activity near this species' habitat.
- Provide new and/or additional trash receptacles along trails and pathways that are near the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh to minimize the amount of refuse, which can attract unwanted terrestrial and avian predators. Provide signage indicating the importance of preventing litter (especially involving food waste), provide adequate waste receptacles that are self-closing, and empty those receptacles before they fill. To further reduce and/or eliminate predator pressure from nonnative and nuisance wildlife species, refer to guidelines and best management practices as outline under Section 7.2 below.
- Provide visual and physical buffers between adjacent trails and pathways and the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh by planting native vegetation such as saltbush, coyote brush, and other plants.
- Any required vegetation maintenance, such as mowing around the edges of the trails and pathways that are adjacent to suitable habitat for this species, should avoid, to the extent feasible, the nesting season (February 1 through August 31). For all vegetation maintenance that may occur during the breeding season (February 1 through August 31) where common yellowthroats may nest, personnel will follow the avoidance and minimization measures as outlined in Section 12.2 below, as applicable.
- Because San Francisco common yellowthroats will use dense vegetation, even weedy vegetation, adjacent to wetlands for nesting, foraging, and cover, a buffer free from intensive vegetation management (e.g., mowing) should be maintained around suitable wetland nesting habitat for this species.

## 6.5 Monarch Butterfly

### 6.5.1 Ecology and Occurrence at Shoreline

Monarch butterflies breed exclusively on plant species in the subfamily Asclepiadoideae, with 27 species of milkweed, as well as a few plants in closely related genera, having been recorded as larval food plants (Malcolm and Brower 1986). After eggs are laid on these hostplants, the eggs hatch, and larvae feed on the host plants.

After a pupal stage, the individuals emerge as butterflies. Adult monarch butterflies obtain energy from nectar, using a wide variety of flowers (including milkweed) for foraging.

Monarchs are known to overwinter along the California coast from Mendocino County south to Baja California, with the largest groups typically occurring in Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties. They typically begin arriving at overwintering sites in mid-October (Hill et al. 1976), where they form dense clusters on the branches and leaves of trees. Monarchs depart from these overwintering sites in late-February or March. They disperse across California and several western states to breed (Dingle et al. 2005).

The species is a common migrant, and less common breeder, in the South San Francisco Bay Area. Native milkweed occurs at scattered locations in the South Bay, and some monarchs in the region breed on native milkweed. Those milkweed plants typically senesce (i.e., become dried and die) by fall, so under natural conditions, monarchs do not breed in the South Bay in winter (due to the absence of suitable hostplants) or form overwintering aggregations here. However, landscape plantings in some parts of the City of Mountain View also include nonnative tropical milkweed. That plant species' life cycle, coupled with artificial irrigation of the plants, allows it to serve as a suitable larval hostplant even in winter. During the winter of 2020-2021, a breeding population of monarch butterflies was documented using tropical milkweed along Shorebird Way and Charleston Road, which is adjacent to the Charleston Retention Basin (James et al. 2021). Breeding monarch butterflies of various life stages have also been observed in the landscape vegetation along Charleston Way near Shorebird Way. Therefore, the monarch butterfly is present as a breeder in the vicinity of the Heron/Egret Rookery and Charleston Retention Basin.

The implications of winter breeding by monarchs in the Plan Area are complex, and not fully understood. For example, winter breeding might be beneficial to the monarch population by increasing population size. Milkweed that is maintained in condition through the winter by irrigation might also benefit monarchs migrating from wintering aggregations by providing breeding sites in early spring (e.g., March). However, several potentially deleterious effects of such winter breeding are suspected (Crone and Schultz 2021). These potential effects include disruption of migration (potentially leading to the loss of the migratory instinct that monarchs have under natural circumstances). If monarchs find suitable breeding habitat in winter and do not migrate to coastal wintering roosts, they could face higher winter mortality, especially if conditions in the winter breeding areas become colder or wetter than in the areas where they might otherwise winter. Year-round breeding by monarchs (e.g., if monarchs were to breed throughout the year, using irrigated milkweed in landscaped areas) could also result in higher parasite loads compared to migratory populations. In migratory populations, the absence of monarchs from a given area during at least a portion of the year (i.e., while they are at winter roosts) causes a decline in parasites that infect monarch larvae. If monarchs breed in the Plan Area year-round, larvae would be present year-round and there would never be a period in which the parasite loads would decline. High parasite loads are linked to lower migration success and lower reproductive capacities. Thus, if monarchs were to breed in the Plan Area year-round using irrigated and/or nonnative milkweed, this could lead to a loss of the migratory portion of the species' life cycle and could potentially cause wintering populations to become a demographic sink (Crone and Schultz 2021). Currently, the Xerces Society and the USFWS oppose planting

nonnative milkweeds within 5 miles of monarch overwintering sites in California, in order to preserve the species' migratory behavior and avoid other deleterious effects (J. Terry, pers. comm.). However, there is not universal agreement among monarch experts regarding the effects of nonnative milkweed on monarch populations in the Bay Area. Whether or not the benefits of nonnative milkweed, or of irrigating native milkweed through the winter so that it does not senesce in fall, are still unknown, and research is being conducted into such issues.

Monarchs may be present in any location of the Plan Area at Shoreline where milkweed or nectar plants occur. In fact, Shoreline has been designated as a Monarch Waystation by Monarch Watch due to the past efforts of staff and volunteers to plant milkweeds and nectar plants. There are two prime areas at Shoreline that have been designated as protected, sensitive areas for the monarch and habitat enhancement efforts. Those two areas are located in the southwest corner of the Northeast Meadowlands area, and in one former golf course pond location found in the northwest portion of the golf course (Figure 5).

The monarch butterfly is considered an umbrella species for large numbers of invertebrates, as well as nectar-feeding vertebrates such as hummingbirds, that use milkweed and nectar-producing flowers. Thus, providing habitat enhancements for the monarch butterfly will also benefit these additional wildlife species.

### 6.5.2 Conservation Goals

- Enhance the availability of native milkweed for breeding, and flowers providing nectar for adults, in focal monarch butterfly conservation areas and elsewhere within grassland and landscaped areas throughout the Plan Area.

### 6.5.3 Habitat Enhancement and Management Measures

As part of the City's conservation efforts focused on pollinators, specifically monarchs, and their habitat, the City leveraged grant funding for two initiatives. First, the City purchased milkweed and other pollinator seeds for the Mountain View Seed Library Program, where the Mountain View Library provides seeds and instructions for planting at no cost to members of the library. The second initiative has been to enhance pollinator habitats within Shoreline at Mountain View. The City established a three-phase plan for enhancing pollinator habitat at Shoreline with each phase representing two different locations and projects. Those areas in the Plan Area are described above and shown on Figure 5.

Each project requires installation of irrigation, planting 50% milkweed and 50% other pollinator plants, and laying down wood chips to inhibit the growth of other plants. Phase 1 was completed within Shoreline in 2022, with help from multiple volunteer groups. The area that was enhanced is located in the southwest portion of the Northeast Meadowlands, within a 9-ac burrowing owl preserve. Phase 1 of the project was very successful with both adult monarchs and caterpillars utilizing the newly established planting area.

Two species of milkweeds were planted: 1) narrowleaf milkweed (*Asclepias fascicularis*), which comprised 95% of the milkweeds, and 2) showy milkweed (*Asclepias speciosa*). The perennial pollinator plants consisted of the following species: golden yarrow (*Eriophyllum confertiflorum*), California aster (*Corethrogyne filaginifolia*), seaside daisy (*Erigeron glaucus*), California buckwheat (*Eriogonum fasciculatum*), St. Catherine's lace (*Eriogonum giganteum*), gumplant, coyote mint (*Monardella sheltonii*), golden currant (*Ribes aureum*), California rose, white sage (*Salvia apiana*), Cleveland sage (*Salvia clevelandii*), purple sage (*Salvia dorrii*), and California goldenrod (*Solidago velutina* ssp. *californica*). The annual pollinator species consisted of the following species: California poppy (*Eschscholzia californica*), farewell-to-spring (*Clarkia amoena*), Chinese houses (*Collinsia* sp.), mountain garland (*Clarkia unguiculata*), bird's eye gilia (*Gilia tricolor*), globe gilia (*Gilia capitata*), tidy tips (*Layia* sp.), mountain phlox (*Phlox austromontana*), miniature lupine (*Lupinus bicolor*), sky lupine (*Lupinus nanus*), arroyo lupine (*Lupinus succulentus*), baby blue eyes (*Nemophila menziesii*), fivespot (*Nemophila maculata*), tansy-leafed phacelia (*Phacelia tanacetifolia*), Bolanders sunflower (*Helianthus bolanderi*), annual sunflower (*Helianthus annuus*) and meadowfoam (*Limnanthes douglasii* ssp. *sulphurea*).

These same habitat enhancement measures will be completed in the other focal conservation area for the monarch in the northwest portion of the golf course (Figure 5), thereby expanding native plants that will greatly enhance the attractiveness of the Plan Area for monarchs. Both sites are now designated protected, sensitive wildlife areas. In addition, the native plants for this project have been chosen to provide nectar, pollen, seeds and berries to benefit a diversity of pollinators and other wildlife, including birds.

The City will identify other areas where similar plantings can occur within the Plan Area. Such areas do not have to be large; rather, planting patches of milkweed and nectar plants in scattered locations in landscaped areas and grasslands throughout the Plan Area would benefit monarch butterflies and other vertebrate and invertebrate species. No tropical milkweed will be included in these planting areas.

# Section 7. Management of Invasive and Nuisance Species, and Pathogens

This section discusses why invasive plant species, invasive and native nuisance animal species, and plant and animal pathogens are detrimental to wildlife at Shoreline; the invasive plants and animals, native nuisance species, and pathogens that occur at Shoreline; best management practices (BMPs) to be implemented to minimize the potential for introduction, spread, or support of those species; and more active control methods that will be implemented for the most invasive or harmful species.

## 7.1 Invasive Plants

For over two centuries, humans have brought nonnative plants and animals to the San Francisco Bay area, either accidentally (e.g., as stowaways on recreational equipment) or intentionally (e.g., planting and seeding), and many of these species have now been introduced into the wild. Such species that cause harm and, once established, spread quickly from their point of introduction are often called "invasive" species. Invasive plant species can threaten the diversity and abundance of native species through competition for resources, transmission of disease, parasitism, and physical or chemical alteration of the habitat. For example, invasive plant species are often able to colonize disturbed sites more quickly than natives, thus dominating areas after disturbance and outcompeting the native species for water, nutrients, sunlight, and space. Because many wildlife species rely on native plant species or native-dominated communities, invasive plants may degrade wildlife habitat quality by changing the type and quality of resources available to wildlife. Therefore, this section focuses on invasive plants that can reduce habitat quality for wildlife and the measures the City will take to minimize impacts of invasive plants.

### 7.1.1 Invasive Plants at Shoreline

Because Shoreline is located on a former landfill, decomposition of trash results in ground subsidence, which then necessitates importing fill to ensure proper drainage. That fill soil often contains weed seeds, and the disturbance associated with importing and grading fill further encourages infestation by invasive plants. As a result, invasive plant management is an ongoing challenge at Shoreline.

Table 2 lists the most common invasive plant species that occur at Shoreline, as well as the invasiveness rating provided by the California Invasive Plant Council (Cal-IPC 2022), the locations and habitats in which they occur, BMPs to be implemented to minimize the potential for introduction or spread of these species, and (as necessary) more active control methods for these species. Although many more nonnative plant species occur at Shoreline, Table 2 lists those that have typically provided the primary management challenges for Shoreline personnel.

**Table 2. Invasive Plant Species and Management/Control Measures**

| Name | Cal-IPC Status | Occurrence at Shoreline | Potential Control Measures* |
|---|---|---|---|
| Russian thistle (*Salsola tragus*) | Limited | Grasslands, disturbed areas | Manual pulling, hoeing, repeated mowing; herbicide use if necessary |
| Shortpod mustard (*Hirschfeldia incana*) | Moderate | Grasslands, disturbed areas | Manual removal before seeds develop; herbicide use if necessary |
| Yellow star-thistle (*Centaurea solstitialis*) | High | Grasslands, disturbed areas | Hand removal, mowing (over 2-3 years); herbicide use if necessary |
| Fennel (*Foeniculum vulgare*) | Moderate | Grasslands, disturbed areas, open landscaped areas | Mechanical removal such as digging and slashing; herbicide use if necessary |
| Stinkwort (*Dittrichia graveolens*) | Moderate | Grasslands and disturbed areas | Mechanical removal such as hoeing or pulling, or low mowing; herbicide use if necessary |
| Perennial pepperweed (*Lepidium latifolium*) | High | Tidal marsh, nontidal brackish marsh, some grassland areas | Mowing or pulling of heavy infestations; herbicides approved for use in aquatic environments (e.g., "Habitat" with imazapyr) if necessary |

* BMPs for all these species are similar and are discussed in the text

### 7.1.2 Best Management Practices and Invasive Plant Control Measures

#### 7.1.2.1 Best Management Practices

BMPs implemented to minimize the introduction or spread of invasive plants include the following:

- Minimize the extent of ground disturbance and maintain cover by desirable plants to the extent feasible.
- Clean equipment after working in areas infested with invasives to avoid spreading seeds; clean equipment and materials in areas where seeds and other plant propagules cannot wash into uninfested areas.
- After ground disturbance occurs, seed disturbed areas with a seed mix composed of native and non-invasive plant species to establish competition for invasive species that may colonize those disturbed areas.
- If work will occur in both infested and uninfested areas, start the work in uninfested areas and then move to infested areas.
- Dispose of waste soil, seeds, and cut vegetation properly.
- Stage equipment and materials in areas, such as parking lots, that are not infested with invasives to avoid picking up seeds.

#### 7.1.2.2 Invasive Plant Control Measures

Most invasive plant management that occurs at Shoreline is performed to maintain suitable habitat for burrowing owls in grassland areas. The City typically hires a contractor to perform two large-scale mowing efforts per year, one typically February-April and the second in late June. The timing of the first mowing is determined by the height of vegetation and is intended to prevent vegetation from becoming too tall to provide suitable burrowing owl habitat. The second mowing occurs in June. In addition, Shoreline personnel mow areas near prime burrowing owl nesting areas to remove tall vegetation or weed infestations on an as-needed basis, year-round.

Shoreline personnel also use herbicides for targeted, localized invasive plant removal on an as-needed basis. The primary target species for herbicide use are yellow star-thistle (*Centaurea solstitialis*), stinkwort (*Dittrichia graveolens*), and perennial pepperweed (*Lepidium latifolium*). Spraying is usually performed when these plants first emerge and before they bloom. In addition, volunteers assist Shoreline personnel with manual removal of weeds in areas where native plants have been planted or seeded. Sheet mulching or wood chips are sometimes used to reduce weed infestations in native planting areas.

Because some invasive plants provide wildlife habitat, and removal of invasive plants has the potential to increase ground disturbance and spread invasive plant propagules, the need for invasive plant management should be determined through monitoring, and management may not need to occur if occurrences of certain species are not spreading. For example, fennel serves as the primary host plant for the native anise swallowtail butterfly (*Papilio zelicaon*), and in fall, fennel supports high densities of invertebrates that are eaten by migrant

songbirds. As a result, if a patch of fennel is not expanding, the City will consider leaving it in place, or mowing it after fall songbird migration.

## 7.2 Nonnative Animals and Native Nuisance Animals

Nonnative animals can have deleterious effects on native wildlife through predation, competition for resources, transmission of disease, parasitism, and other pathways. Similarly, some native animals are considered nuisance species because they can take advantage of human activity to thrive, thereby enabling them to occur in areas, or in numbers, where they may then impact other, more sensitive native species through predation or competition. This section discusses invasive and nonnative animals, and native nuisance species, that can reduce habitat quality for or otherwise directly impact populations of native wildlife, and the measures the City will take to minimize impacts of these species.

### 7.2.1 Nonnative and Nuisance Animals at Shoreline

The American bullfrog (*Lithobates catesbeianus*) has been accidentally and intentionally introduced (e.g., for food in the 1920s by commercial frog farmers) throughout the world and is now established throughout most of the western United States. The species' large size, mobility, generalized eating habits (their prey includes native amphibians as well as other aquatic and riparian vertebrates [Graber 1996]), and aggressive behavior have made bullfrogs extremely successful invaders and a threat to biodiversity. Nonnative turtles, particularly the red-eared slider, compete with the native northwestern pond turtle for high-quality basking sites. Nonnative mammals such as feral house cats and red fox are known to occur in the Plan Area and are predators of native birds, small mammals, and reptiles. The red fox was first reported in the South San Francisco Bay area in 1986 (Foerster and Takekawa 1991), and the species has since increased and expanded to become established throughout the Bay area. It dens in a variety of habitats, including bayside levees (Foerster and Takekawa 1991). Red fox predation has resulted in the abandonment of important colonies of Caspian terns (at Mowry and Bair Island) and herons (at Bair Island) in the South Bay. California Ridgway's rail predation by both red foxes and feral cats has been directly documented in the South Bay by the tracking of radio-marked rails that were depredated in 1991 and 1992 (Albertson 1995). Nonnative Norway rats and black rats are thought to be important predators of California Ridgway's rail eggs (Foerster et al. 1990, Harvey 1988, Josselyn et al. 2004).

Native nuisance species in the Plan Area include the raccoon, striped skunk, California gull, common raven, and American crow. All of these species eat human food waste, either at landfills (in the case of California gull, common raven, and American crow) or in a variety of locations throughout the South Bay (in the case of all these species). That human food waste helps increase productivity and survivorship of these species, thus helping them to maintain high local populations. These species also prey on sensitive animals, such as small mammals, eggs and young of birds, reptiles, and amphibians. Therefore, the anthropogenically-supported high populations of these nuisance species pose a threat to sensitive species in the Plan Area.

Table 3 lists the most common, problematic nonnative animal species and native nuisance species occurring at Shoreline, the locations/habitats in which they occur, BMPs to be implemented to minimize the potential for

introduction or spread of these species, and (as necessary) more active control methods for these species. Other nonnative animals, such as the house mouse, European starling, house sparrow, and others, also occur at Shoreline. However, because those other species do not pose a significant threat to native wildlife, and thus will not be subject to specific management actions at Shoreline, they are not listed in Table 3 or addressed here.

**Table 3. Nonnative and Native Nuisance Animal Species and Management/Control Measures**

| Name | Potential Adverse Effect on Native Wildlife | Occurrence at Shoreline | Best Management Practices and Control Measures |
|---|---|---|---|
| ***Nonnative Animals*** | | | |
| American bullfrog (*Lithobates catesbeianus*) | Predation on native amphibians, reptiles, and small birds, and competition with native amphibians | Nontidal freshwater ponds (golf course ponds) and possibly nontidal freshwater wetland (Charleston Retention Basin) | Periodically drain ponds supporting breeding bullfrogs to disrupt the species' life cycle |
| Red-eared slider (*Trachemys scripta elegans*) | Competition with native western pond turtle | Nontidal freshwater ponds (golf course ponds) | Manage individuals as required and feasible to protect the western pond turtle population |
| Feral cat (*Felis catus*) | Predation on a variety of birds, mammals, and reptiles | Multiple locations in the Plan Area, particularly near high human-use areas such as adjacent commercial areas | Prohibit feeding of cats in Plan Area; dispose of human food waste properly; work with adjacent landowners and tenants to reduce the release and feeding of cats; manage cats as required and feasible to protect sensitive species populations if immediately threatened by cats |
| Red fox (*Vulpes vulpes*) | Predation on a variety of birds, mammals, and reptiles | Could occur virtually anywhere in the Plan Area | Dispose of human food waste properly; manage red foxes as required and feasible to protect sensitive species populations if immediately threatened by red foxes |
| Norway rat (*Rattus norvegicus*) | Predation on bird eggs | Could occur virtually anywhere in the Plan Area, but particularly near areas providing anthropogenic food sources | Dispose of human food waste properly |
| Black rat (*Rattus rattus*) | Predation on bird eggs | Could occur virtually anywhere in the Plan Area, but particularly near areas providing anthropogenic food sources | Dispose of human food waste properly |
| ***Native Nuisance Animals*** | | | |

| Name | Potential Adverse Effect on Native Wildlife | Occurrence at Shoreline | Best Management Practices and Control Measures |
|---|---|---|---|
| California gull (*Larus californicus*) | Predation on bird eggs and chicks, and on small mammals | Shoreline Lake, Coast Casey Forebay (and could forage more widely) | Dispose of human food waste properly |
| American crow (*Corvus brachyrhynchos*) | Predation on a variety of birds (including eggs and chicks), mammals, and reptiles | Could occur virtually anywhere in the Plan Area, but particularly near areas providing anthropogenic food sources | Dispose of human food waste properly; do not provide new perches for hunting near sensitive species' habitats |
| Common raven (*Corvus corax*) | Predation on a variety of birds (including eggs and chicks), mammals, and reptiles | Could occur virtually anywhere in the Plan Area, but particularly near areas providing anthropogenic food sources | Dispose of human food waste properly; do not provide new perches for hunting near sensitive species' habitats |
| Raccoon (*Procyon lotor*) | Predation on a variety of birds (including eggs and chicks), mammals, and reptiles | Could occur virtually anywhere in the Plan Area, but particularly near areas providing anthropogenic food sources | Dispose of human food waste properly; manage individuals as required and feasible to protect sensitive species populations if immediately threatened by raccoons |
| Striped skunk (*Mephitis mephitis*) | Predation on bird eggs and chicks | Could occur virtually anywhere in the Plan Area, but particularly near areas providing anthropogenic food sources | Dispose of human food waste properly; manage individuals as required and feasible to protect sensitive species populations if immediately threatened by skunks |

### 7.2.2 Best Management Practices and Control Measures for Invasive and Nuisance Animals

#### 7.2.2.1 Best Management Practices

BMPs implemented to discourage the occurrence and minimize the abundance of nonnative animals and native nuisance species that are problematic to native wildlife in the Plan Area include the following:

- Ensure that human food waste is disposed of properly. Provide new and/or additional trash receptacles near sensitive species' habitats. Provide signage indicating the importance of preventing litter (especially involving food waste), provide adequate waste receptacles that are self-closing, and empty those receptacles before they fill. Ensure that waste collection areas (e.g., dumpsters) are well maintained and that receptacles such as dumpsters close properly so that no nonnative or nuisance animals can access food waste. This is especially important at special events at Shoreline, such as in parking lots where people gather prior to and during events (e.g., the parking lots that surround the retention basin and the parking lots east of Crittenden Hill).
- Do not install any features suitable for use by crows, ravens, or raptors in areas where those structures could increase predation success (e.g., in areas without existing perches of the same or higher quality as those proposed). If such features must be installed, incorporate perch deterrence measures within the features so they do not facilitate predation of sensitive species.

#### 7.2.2.2 Nonnative and Nuisance Animal Control Measures

Bullfrogs typically must overwinter as larvae, rather than metamorphosing and being able to leave aquatic habitats the same year they hatch, and as a result, draining ponds disrupts the species' life cycle by killing larvae. The City previously detected bullfrogs in golf course ponds. However, after draining three of the four ponds, no bullfrogs have been detected; if they are still present, they occur only in low numbers.

Removing individual animals from the population may also be an effective control measure for other nonnative species as well. Red foxes will also be trapped and removed when detected. If feral cats are thought to be an immediate threat to sensitive species (e.g., if observed near tidal marsh supporting special-status rails and small mammals, or near burrowing owl nests), they will be trapped and removed. The City prohibits the feeding of any animals at Shoreline, and will ensure that appropriate signage is provided to convey this to the public. The City will also work with owners and tenants of adjacent commercial lands to reduce the degree to which cats are released into and fed within the North Bayshore area. If predation by raccoons and/or striped skunks on sensitive species at Shoreline is documented, the City will consider trapping and removing individuals of those species from particularly sensitive areas.

Reducing the availability of human food waste will help keep rat populations in check but will not eliminate them from the Plan Area. Nevertheless, the City will not use rodenticide in the Plan Area to control these or other rodents, to avoid impacting non-target rodents and secondary poisoning of predators and scavengers.

## 7.3 Pathogens

Pathogens, which are organisms that carry disease, can be detrimental to native plants and animals by killing them or impairing their health to the point of reducing productivity or ability to compete with other species. If plant pathogen infestations become widespread, they could affect the extent and quality of habitat for native wildlife at Shoreline, while animal pathogens can affect native animals directly.

### 7.3.1 Potential Pathogens of Concern

*Phytophthora* is a taxonomic group of microscopic oomycetes (also known as water molds). More than 170 *Phytophthora* species have been described, and almost all are known to be pathogenic to plants. Plant diseases caused by *Phytophthora* include root rots, stem cankers, and fruit and leaf blights. *Phytophthora* is transmitted through the movement of contaminated soil and water, and some species are known to be airborne. Movement of contaminated soil and plant material (e.g., on tools, boots, clothing, vehicles, and equipment) and water (in runoff or dust-suppression water) are primary pathways for spreading infection. *Phytophthora* can become widespread within nurseries, and installation of plants infected with *Phytophthora* is a common means of introducing the pathogen to new areas. Areas with woody vegetation and susceptible host plants are at greatest risk of being infested. Once introduced into native habitats, *Phytophthora* persists in soil and infected host roots and is very difficult to impossible to eradicate (Swiecki and Bernhardt 2014). Spread of contamination could result in long-term impairment of the health of native vegetation, potentially resulting in declines in abundance of sensitive plant species and communities (Swiecki 2020). For example, *Phytophthora* is responsible for the phenomenon known as Sudden Oak Death.

Other pathogens can adversely affect animals. Ranaviruses can cause impaired health or mortality of amphibians, turtles, and fish. These viruses are transmitted through direct contact between infected and uninfected animals, contaminated water, or predation (e.g., ingestion of infected animals). Chytrid fungus is a water-borne fungus that can impair the health of amphibians. There are approximately 1,000 chytrid species, and *Batrachochytrium dendrobatidis* can infect the skin of amphibians (Longcore et al. 1999). Infected individuals may develop chytridiomycosis, a thickening of the skin that inhibits amphibians' ability to absorb water and electrolytes, eventually causing death (Voyles et al. 2009). Chytridiomycosis outbreaks have been linked to substantial declines in some amphibian populations (Berger et al. 1998, Fisher et al. 2009). Chytrid fungus may be spread by dispersal of infected by translocation of zoospores by other animals or humans (including equipment and machinery) among waterbodies. Shell disease can affect the health of northwestern pond turtles. Caused by fungal or bacterial infections, shell disease can result in lesions or irregularities in turtles' shells. This disease is known best in captive or domestic turtles, but there is concern that it could affect wild turtles, such as northwestern pond turtles (Washington Department of Fish and Wildlife 2016).

Some native mammals can contract diseases from domestic animals. For example, gray foxes, coyotes, raccoons, and striped skunks are all susceptible to canine distemper contracted from domestic dogs. Distemper can spread through the populations of these native species and cause local population declines (Simons 2022).

### 7.3.2 Best Management Practices in Case of Pathogens

The City has not detected any obvious pathogen-related problems with native plants, native animals, or their habitats in the Plan Area. As a result, there is no imminent need for control of pathogens. However, to reduce the potential for plant or animal pathogens to be mobilized into or within the Plan Area, the City will follow BMPs, as applicable to a given activity, for work activities associated with sensitive riparian or wetland habitats (e.g., at the Charleston Retention Basin or in tidal marsh areas). Steps to address pathogens from spreading in the case of an outbreak include:

1. Before arrival at the site, equipment (tools, clothes and footwear) and vehicles should be cleaned of soil and debris and stored or parked on paved surfaces. If possible, sanitize tools for maximum effect.

2. To the degree feasible, work will be planned to reduce movement between areas suspected of contamination and other sensitive areas. In addition, work activities associated with a high likelihood of spreading contamination should be scheduled to avoid rainy periods or times when soil is very wet and more likely to contaminate equipment

3. Irrigation components, plants, plant materials and materials used for erosion control will be obtained to ensure clean, non-contaminated stock will be brought to sites.

Following BMPs in response to a potential pathogen outbreak will help reduce the potential spread of both Phytophthora and animal diseases. In addition, the potential to spread reptile and amphibian diseases will be minimized by monitoring for diseased individuals. If sick amphibians or reptiles are observed, Shoreline personnel will take measures to avoid spreading the disease. Such measures include steps as described above before moving from a pond containing sick animals to another waterbody.

Continuing to prohibit the public from bringing domestic animals into Shoreline will reduce the potential for recreational users to introduce diseases such as distemper into the Plan Area.

# Section 8. Habitat Management Guidelines, and Enhancement and Restoration Opportunities

One of the main purposes of the Plan is to create and maintain a mosaic of different habitats throughout Shoreline. This section describes the types, locations, and benefits to wildlife of habitat enhancement and restoration opportunities in the Plan Area to create that habitat mosaic to benefit wildlife.

## 8.1 Habitat Management Guidelines

This section summarizes general guidelines for management activities in the Plan Area, compiling the guidelines listed in Section 3 for specific habitat types. Whereas this section addresses routine management guidelines, habitat enhancement measures to improve conditions relative to existing conditions are addressed in Section 8.2. See Section 12 for further measures to avoid and minimize impacts of activities in the Plan Area on sensitive habitats and species.

**General Management Guidelines:**

- Protect existing trees and shrubs and avoid trimming and/or removal if feasible. In particular, protect existing trees in the North Shore area where white-tailed kites have nested.
- Limit mowing of some grassland areas; allow those areas to support tall grasses, forbs, and shrubs to the extent that fire safety allows. Vegetation should not be maintained right to the edges of wetland, marsh, or riparian habitats; rather, some unmaintained buffer that is not mown or otherwise intensively managed should be allowed to remain around the edges of sensitive habitats.
- At the Charleston Retention Basin, continue with the following monitoring and maintenance guidelines:
    - Annual monitoring of tree, shrub, and plant health, including an overall assessment of dominant vegetation components
    - Annual monitoring and control of invasive weed species as necessary
    - Continued removal of trash and debris
- In the golf course ponds, continue use of aerators to maintain water quality.
- In Shoreline Lake:
    - Continue current water management practices.
    - During the nonbreeding season for island-nesting birds (September 1 through January 31), remove some vegetation to maintain low-statured, sparsely vegetated areas interspersed between sandy soils for nesting.
- On the island in Charleston Slough:
    - Remove all invasive vegetation from the island, and cut any non-invasive vegetation to ground level.

    - Periodically remove vegetation from the island so that vegetation is low-statured and sparse, thus providing some cover for nesting birds without becoming so tall and dense as to preclude use of the island by nesting terns, skimmers, and shorebirds, and by roosting waterbirds.
- Avoid any significant modification of water management in the Coast Casey Forebay.
- At the egret/heron rookery, continue to perform the following management:
    - Close the section of Shorebird Way that passes through the rookery to vehicular traffic from May through September.
    - Do not perform vegetation maintenance (i.e., mowing underneath the trees) from May through September. Cut weedy vegetation that grows during the breeding season during the nonbreeding season.
    - Do not plant vegetation other than turf, low-growing grasses, or other herbaceous plans within 100 feet of the rookery.
    - Following the guidelines established in the North Bayshore Precise Plan EIR, do not perform external construction or large-scale/intensive landscaping involving heavy equipment or loud noise within 200 feet of the rookery during the March 1 to August 31 period unless a survey by a qualified biologist has demonstrated that, after 1 June, egrets have either not nested that year or that all young have fledged and departed the rookery area.
- Do not construct new areas of high human activity, such as overlooks, benches, or picnic facilities, close to wetland or riparian habitats.
- Avoid the construction of additional lighting sources within the Plan Area that can result in impacts on sensitive habitat areas and the wildlife species that use them. At Shoreline, the City may consider adopting goals and guidelines as set forth by the International Dark-Sky Association's (2018) Dark Sky Park Initiative, which is a leading resource for the USFWS Dark Skies Initiative (USFWS 2022). Applicable Dark Skies Initiative measures include:
    - Install lighting only when and where it is needed; avoid installing lighting near any sensitive habitat
    - Use energy saving features such as timers and motion sensors on outdoor lights
    - Shield lighting so that it only shines downward, while angling lighting toward paths or other public-access areas, not toward sensitive habitats
    - Minimize the output of lighting fixtures
- Manage for certain invasive weeds following the guidelines as set forth in Section 7.1. Time mowing events of invasive vegetation such as fennel to avoid periods when patches of vegetation may be in use by birds during the nesting and migratory seasons.
- Conduct a Project Evaluation to determine the correct time to conduct mowing and management activities in all habitats. Refer to Section 12.1 for further details.
- In performing all vegetation and/or building maintenance in the Plan Area, follow all applicable Project Evaluation guidelines in Section 12.1, and avoidance and minimization measures as outlined in Section 12.2.

- To the extent feasible, avoid vegetation maintenance, such as mowing around the edges of the trails and pathways that are adjacent to sensitive habitats, during the avian nesting season (February 1 through August 31). All recommended no-disturbance buffer zones around active bird nests in the Plan Area, as outlined in Section 5.4 and Section 12.2, will be followed.
- When Shoreline personnel become aware of an active kite nest, implement any feasible measures (e.g., temporary trail closures or signage) to avoid human disturbance of the nest.
- Implement the following BMPs to minimize the introduction and spread of invasive plants:
    - Minimize the extent of ground disturbance and maintain cover by desirable plants to the extent feasible.
    - Clean equipment after working in areas infested with invasives to avoid spreading seeds; clean equipment and materials in areas where seeds and other plant propagules cannot wash into uninfested areas.
    - After ground disturbance occurs, seed disturbed areas with a seed mix composed of native and non-invasive plant species to establish competition for invasive species that may colonize those disturbed areas.
    - If work will occur in both infested and uninfested areas, start the work in uninfested areas and then move to infested areas.
    - Dispose of waste soil, seeds, and cut vegetation properly.
    - Stage equipment and materials in areas, such as parking lots, that are not infested with invasives to avoid picking up seeds.
- Implement the BMPs for pathogens, as applicable to a given management activity, listed in Section 7.3.2.
- If a Project Evaluation determines that an activity will be performed in an area known to be occupied by Congdon's tarplant, the following measures will be implemented:
    - Mowing in areas occupied by Congdon's tarplant will not occur March through July unless (a) the mower's height is set above the height of most tarplant individuals present at the time, or (b) mowing is performed with line trimmers to avoid impacts to individual tarplants.
    - Landscaping, intentional planting or seeding of other plant species, or alteration of hydrology (e.g., irrigation) will not occur in areas occupied by Congdon's tarplant.
    - If ground disturbance or other activities that will effectively destroy existing Congdon's tarplant occurrences is unavoidable (e.g., for landfill maintenance), a biologist will identify appropriate mitigation via preparation, seeding, and management of another location at Shoreline to offset the impact to Congdon's tarplant.

## 8.2 Types of Enhancement and Restoration Opportunities

Habitat enhancement and restoration opportunities were identified in Section 3 for individual habitat types and in Section 6 for each of the five umbrella species. This section summarizes and provides more detail on those opportunities. Examples of some locations of potential habitat restoration and enhancement opportunities are shown on Figure 7. Enhancement of wildlife movement corridors is discussed in Section 9.

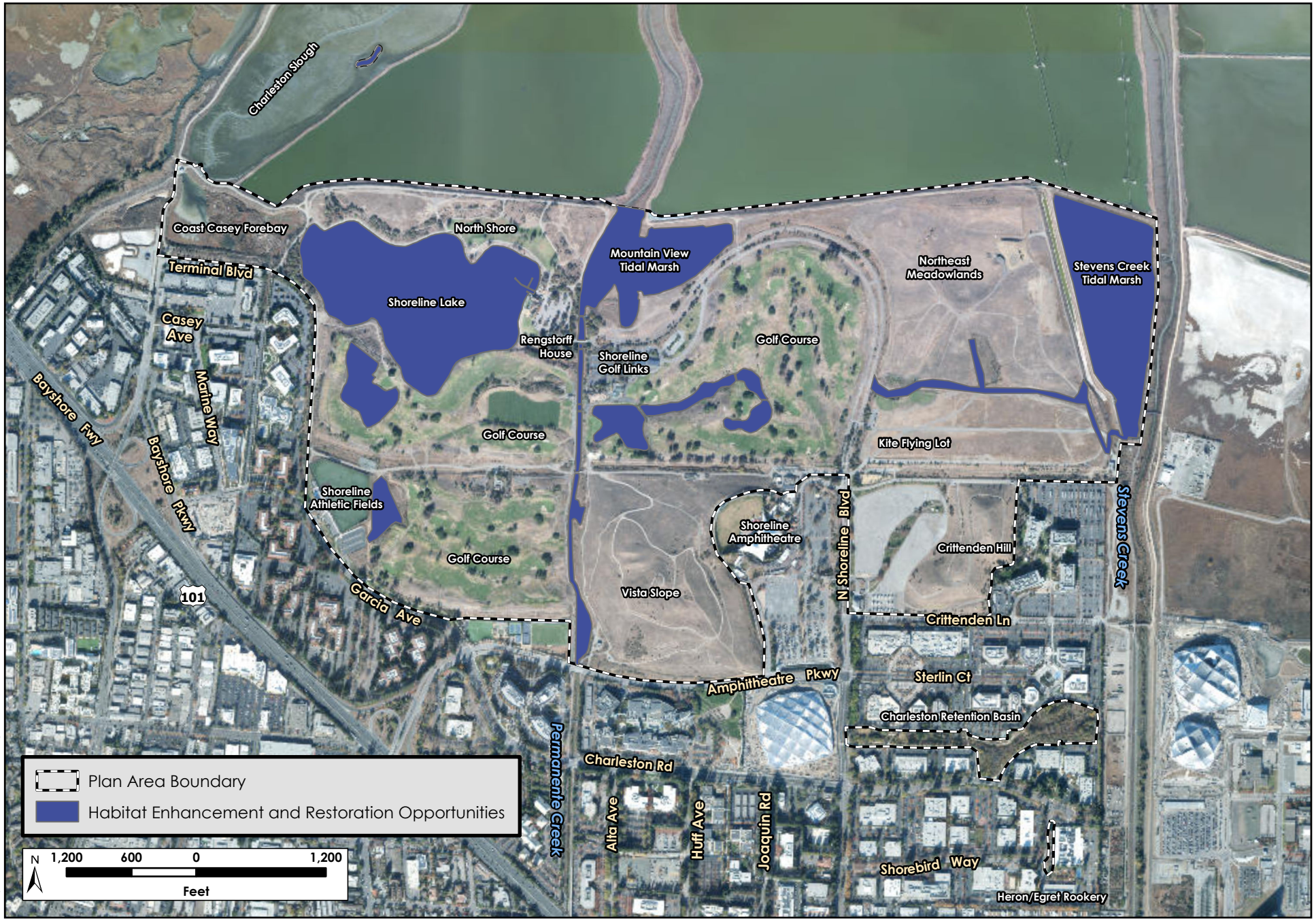


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**Figure 7. Potential Areas for Habitat Restoration and Enhancement**

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### 8.2.1 Wetland Enhancement

#### 8.2.1.1 General Wetland Enhancement Measures

The following measures will be implemented to minimize impacts of recreational activities at tidal marsh associated with the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh, nontidal freshwater pond habitats associated with the golf course pond, and nontidal brackish water/marsh at the Coast Casey Forebay:

- Install "Do Not Enter – Sensitive Habitat Area" signage along the edges of trails, golf course areas, and other recreational facilities near nontidal freshwater pond, nontidal freshwater wetland, nontidal brackish marsh, and tidal marsh habitats to discourage people from entering these areas.
- All new sign posts should be designed to minimize their use as avian predator perches (e.g., they should have conical tops or otherwise preclude perching). Do not install any features suitable for use by crows, ravens, or raptors in areas where those structures could increase predation success (e.g., in areas without existing perches of the same or higher quality as those proposed). If such features must be installed, incorporate perch deterrence measures within the features so they do not facilitate predation of sensitive species.
- Provide new and/or additional trash receptacles along trails and pathways throughout the Plan Area to minimize the amount of refuse, which can attract unwanted predators and nuisance species. Provide signage indicating the importance of preventing litter (especially involving food waste), provide adequate waste receptacles that are self-closing, and empty those receptacles before they fill. Ensure that waste collection areas (e.g., dumpsters) are well maintained and that receptacles such as dumpsters close properly so that no nonnative or nuisance animals can access food waste.
- Provide visual and physical buffers between trails and pathways and nontidal freshwater pond, nontidal freshwater wetland, nontidal brackish marsh, and tidal marsh habitats by planting native vegetation such as saltbush, coyote brush, and other plants around the edges of those habitats (while leaving some open areas for wildlife viewing).

#### 8.2.1.2 Tidal Marsh and Nontidal Brackish Marsh Enhancement

Enhancement of tidal marsh habitats and nontidal brackish marsh habitats will address one of the most significant issues facing special-status birds and mammals using these habitats – increased predation risk during very high water levels. In tidal habitats, such as within the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh, high water levels occur both predictably, when very high "king tides" occur (being highest in winter), and unpredictably, when large storms raise water levels in Permanente and Stevens Creeks, thereby flooding these marshes. The nontidal brackish marsh in Coast Casey Forebay is not influenced by tide levels, but flood events can raise water levels within the Forebay substantially.

During such high-water events, marsh-associated animals seek cover by moving into higher portions of the marsh or adjacent transition zones/upland areas to escape predation. During the most extreme events, these animals are most vulnerable because much of the vegetative cover they rely on becomes inundated. At those times, these animals are susceptible to predation by avian predators, particularly if stranded on islands of

vegetation within the marsh, and by mammalian predators along the marsh/upland edge. California Ridgway's rails, California black rails, salt marsh harvest mice, and salt marsh wandering shrews are special-status species that are particularly at risk during high-water events, though other special-status species, such as the Alameda song sparrow, San Francisco common yellowthroat, and Bryant's savannah sparrow, and non-special-status marsh birds such as the Virginia rail and sora, are at risk as well. Having suitable high-water refuge habitat, such as native marsh gumplant, coyote brush, saltbush, or similar tall vegetation, situated above the reach of most king tides and flood events provides cover for all these marsh species, thus reducing predation risk.

Expanded and enhanced upland transition zone habitat would also expand suitable nesting habitat for the San Francisco common yellowthroat and Alameda song sparrow. In addition, such habitat would provide cover for dispersing animals, thus contributing to habitat connectivity.

To enhance tidal marsh and nontidal brackish marsh habitats in the Plan Area, the City will plant vegetation within the wetland/upland transition zone at the Mountain View and Stevens Creek Tidal Marshes, and at Coast Casey Forebay, to provide high-water refugia for rails and small mammals. Details of this enhancement effort are provided in Section 8.3.1.

### 8.2.2 Shoreline Lake Island Enhancement

As described previously in Section 6.1.3, the vegetation and nesting substrate of the Shoreline Lake nesting island habitat for black skimmers is managed every January and February by Shoreline personnel who remove invasive weeds from the island and place sand and some pea gravel in prime areas on the island where frames have been installed to stabilize the ground substrate, which black skimmers then use as nesting grounds. These activities will continue annually.

In addition to the vegetation enhancement measures that are currently employed on the Shoreline Lake island, measures should be taken to decrease the rate of bank erosion of the island by employing basic principles and techniques of bank stabilization. These measures are described in Section 8.3.3. Erosion Control for the island will require fill of jurisdictional waters within Shoreline Lake, thus necessitating Clean Water Act Section 404/401 permits from the USACE and San Francisco Bay RWQCB.

To further protect black skimmers and other birds nesting and roosting on the island in Shoreline Lake, the City will implement the following enhancement measures:

- Maintain the disturbance-free buffer zone surrounding the nesting island, year-round, and employ buoys, ropes, and signs that are more conspicuous to boaters. This will reduce intrusion by boaters into the buffer zone and reduce disturbance of both nesting and roosting birds on the island.
- Increase the number and visibility of signs at the boat launch area directing boaters to respect the buffer around the island.
- Continue monitoring the black skimmer colony for new threats, such as new forms of human disturbance (e.g., drones); excessive predation by gulls, common ravens, and other predators; and

colonization by California gulls, which may outcompete skimmers for nesting sites in addition to eating skimmer eggs and chicks, and to track reproductive success.

### 8.2.3 Charleston Slough Island Restoration Opportunity

As previously discussed in Section 6.1.3, some vegetation management has been conducted in the past on the island in Charleston Slough. However, the slough is tidal, which reduces the flexibility of crews being able to get out to the island on a regular basis and control the weeds and vegetation. Thus, the island has become overgrown with vegetation over the past few years. Vegetation management measures for the island are identified in Section 8.1. However, without substrate modification to reduce the ability of plants to grow quickly on the island, adequate vegetation management on the island may be infeasible due to the need for frequent visits, by boat, to the island. To inhibit vegetation growth on the island, thereby creating conditions more similar to those on the island in Shoreline Lake, the City will modify the substrate of the island by adding some combination of salt, sand, shells, and pebbles to inhibit plant growth. These materials can be added in wood frames to help stabilize the nesting substrate and provide attractive nest sites for birds, as has been done effectively on the island in Shoreline Lake. Details of these enhancement activities are provided in Section 8.3.4.

### 8.2.4 Grassland Habitat Enhancement

Maintaining approximately 200 ac of medium to high-quality foraging habitat for burrowing owls is one of the main habitat enhancement goals of the Shoreline Burrowing Owl Preservation Plan (Trulio and Higgins 2012). This foraging habitat is intended to support a diversity and abundance of insects and rodents that require tall vegetation, and to provide heterogeneity in vegetation structure and a diversity of cover conditions. This goal for burrowing owl foraging habitat complements very nicely the foraging habitat needs for other grassland foraging raptors such as the white-tailed kite. Thus, no grassland habitat enhancement specific to the white-tailed kite needs to be implemented separately by the Shoreline Wildlife Management Plan.

However, grassland habitat enhancement can occur in such a way as to improve conditions for burrowing owls, white-tailed kites, and monarch butterflies. As described in Section 6.5.3, the City established a plan for enhancing habitat at Shoreline for pollinators, and specifically for monarchs. There are two main locations in the Plan Area, as shown on Figure 5, that the City established as focal conservation areas for the monarch. With help from volunteers, the City enhanced an area within a 9-ac burrowing owl preserve in the southwest portion of the Northeast Meadowlands. The City intends to enhance the other area, in the western part of Shoreline, and may enhance additional areas throughout Shoreline. Details of this enhancement are provided in Section 8.3.5.

To further enhance grassland habitat for wildlife, the City will also consider implementing the following measures:

- Allow vegetation to grow taller, with less frequent mowing, in more grassland areas to support tall grasses, forbs, and shrubs to the extent that fire safety allows. These areas support numerous invertebrates, small mammals, and reptiles, which in turn provide prey for burrowing owls, white-tailed

kites, and other wildlife species. Taller grasses, forbs, and shrubs also provide nesting sites for birds and provide cover along wildlife corridors for dispersing wildlife species such as the gray fox, reptiles, and less-mobile bird species.

- Remove non-authorized trails through grassland to decrease the level of human disturbance close to white-tailed kite nest trees and other wildlife habitat.
- Reduce and/or eliminate chemical pollutants (i.e., pesticides, herbicides) in foraging areas such as the Northeast Meadowlands and Vista Slope area to increase the availability of prey such as California vole and deer mice and avoid secondary poisoning of kits and other raptors.
- Because some invasive plants provide wildlife habitat, and removal of invasive plants has the potential to increase ground disturbance and spread invasive plant propagules, the need for invasive plant management will be determined through monitoring, and management may not need to occur if occurrences of certain species are not spreading. For example, fennel serves as the primary host plant for the native anise swallowtail butterfly, and in fall, fennel supports high densities of invertebrates that are eaten by migrant songbirds. As a result, if a patch of fennel is not expanding, the City will consider leaving it in place, or mowing it after fall songbird migration.
- Install fencing along North Road adjacent to Crittenden Hill and the parking lot area, west of Crittenden Hill. Continue fencing south along North Shoreline Boulevard and then east along Crittenden Lane. Install split-rail fencing along pathways in Crittenden Hill and Vista Slope, which will assist in guiding people along the correct pathways and minimizing the creation of new pathways and trails into sensitive grassland habitat areas. In addition, install fencing along the service road that is adjacent to Vista Slope to protect the boundaries of sensitive grassland habitats in this area.

### 8.2.5 Enhancement of Golf Course Ponds with Floating Islands

The golf course ponds provide suitable habitat for the northwestern pond turtle, which rely on safe places to haul out of aquatic habitats in order to bask during the day. The City will consider installation of floating island structures in the middle of the west, central, and east sections of the pond. Currently, pond turtles bask on the edge of the pond, which makes them more susceptible to predators such as mammals and large wading birds such as herons and egrets. Floating island structures would provide alternative basking locations for pond turtles that are removed from the water's edge, providing safer basking sites. In addition, they may also be used by roosting waterfowl. Details of this enhancement are provided in Section 8.3.6.

### 8.2.6 Additional Fencing Installation at Shoreline

As population increases in the North Bayshore area, the City will continue to assess and identify areas, corridors, and entrances in the Plan Area that may require physical barriers to guide visitors in a manner that least impacts wildlife. In addition, human access to Shoreline after the park is closed (i.e., at night) or to areas not designated for recreational use while open could cause disturbance of wildlife. Diurnal wildlife that are roosting in trees, on Shoreline Lake, or in other areas for the night could be disturbed by such unauthorized access, and the activity of nocturnal animals could be disrupted by human access after hours. The City will consider installing

additional fencing and/or gates at locations where nighttime human access is most likely to occur to discourage such access.

## 8.3 Details of Specific Enhancement and Restoration Projects

This section describes the goals of specific enhancement and restoration projects being considered by the City; the general timelines for implementing these projects; other organizations or volunteers who could assist with these projects and how the City could involve the community; potential grant-funding opportunities and partnerships to complete these projects; and any potential resource agency permitting that would be necessary. The following projects represent those currently under consideration by the City, but the City will identify other enhancement and restoration projects in the future.

### 8.3.1 Tidal Marsh and Nontidal Brackish Marsh Enhancement

**Goal:**

- Create suitable high-water refuge habitat for special-status species associated with Mountain View Tidal Marsh, Stevens Creek Tidal Marsh, and Coast Casey Forebay, and expand and enhance nesting habitat for the San Francisco common yellowthroat and Alameda song sparrow

As described in Section 8.2.1.2, the City will plant vegetation within the wetland/upland transition zone at the Mountain View and Stevens Creek Tidal Marshes, and at Coast Casey Forebay, to provide high-water refugia for rails and small mammals. This vegetation will also expand and enhance nesting habitat for the San Francisco common yellowthroat and Alameda song sparrow. The majority of the transition zones in these habitats is currently occupied by upland weedy vegetation that provides low-quality refugial habitat during high-water events. In order to identify and select specific transition zone areas where refuge habitat enhancement would maximize the benefit for wildlife, the following criteria would be used: 1) areas close to areas within the marsh providing high-quality habitat for special-status rails or mammals; 2) areas far from existing refuge habitat cover (e.g., larger, higher patches of existing marsh gumplant or other suitable refugia); and 3) areas far enough from established trails and other human-use areas that disturbance of animals using these high-water refugia will be minimized.

Table 4 provides an example planting palette that would be appropriate to use for the transition zone habitat enhancement. The precise planting palette and percent species composition would be determined on a site-by-site basis by a qualified restoration ecologist, taking into account the conditions at each site. For example, a number of additional plant species could be considered for upland transition zones, as described in Section 10.2.1.

**Table 4. Example Transition Zone Enhancement Areas Planting Palette**

| Scientific Name | Common Name | Percent Composition |
|---|---|---|
| *Grindelia stricta* | Marsh gumplant | 50* |
| *Ambrosia psilostachya* | Western ragweed | 8 |
| *Euthamia occidentalis* | Western Goldenrod | 8 |
| *Baccharis glutinosa* | Marsh baccharis | 8 |
| *Symphyotrichum chilense* | Pacific aster | 8 |
| *Elymus triticoides* | Creeping wildrye | 8 |
| *Distichlis spicata* | Saltgrass | 10 |

* Coyote brush and saltbush may be used in addition to marsh gumplant

**Timeline of Implementation:**

- Priority: Short Term
- Specific – Site preparation and planting would be performed outside the avian nesting season (i.e., it would be performed September 1 through January 31), preferably in fall, just prior to the start of the wet season

**Potential Assistance:**

- The City would reach out to salt marsh restoration specialists from Bay area consulting firms or non-profit groups (e.g., Save the Bay) to develop a detailed plan to carry out these enhancement opportunities.
- When the project is ready for implementation, the City would seek volunteers through advertising on social media and the City's website for participation.

**Potential Grant Opportunities and Partnerships:**

- California State Coastal Conservancy.
- USFWS National Coastal Wetlands Conservation Grants Program.
- The United States Environmental Protection Agency's (EPA) Wetland Program Development Grant.
- South Bay Salt Pond Restoration Project
- CDFW
- California Department of Water Resources
- Santa Clara Valley Audubon Society
- GreenSpacesMV
- Save the Bay

**Potential Permitting Requirements:**

- BCDC permit for work within BCDC's Shoreline Band jurisdiction.

- No wetlands permits are necessary if all work occurs outside (above) the limits of USACE and RWQCB jurisdiction, as expected.
- FESA and CESA incidental take approval will not be necessary with implementation of appropriate avoidance and minimization measures. Such measures will be identified on a site-by-site basis, based on the suitability of habitat for various species, primarily the salt marsh harvest mouse.

### 8.3.2 Wildlife Movement Corridor Enhancement

**Goals:**

- Create and/or enhance wildlife movement corridors with minimal impediments to dispersal, such as tall fences, busy roadways, and excessive human disturbance.
- Create sufficient cover (e.g., shrubs, trees, tall grasses) in wildlife corridors for use as refugia from predators as animals move between habitat areas.
- Focus wildlife movement corridor creation and/or enhancement away from burrowing owl preserves and mitigation sites to avoid increasing mammalian predation on burrowing owls.

As described in Section 9, the primary value of the Plan Area to the movement of non-flying, terrestrial animals is its facilitation of movement between natural habitat areas to the west/northwest and habitat areas to the east (including Stevens Creek – which serves as a movement corridor through the urban matrix to the south – as well as other natural habitats to the east). To facilitate wildlife movement through the Plan Area, the City will provide additional plantings of dense shrubs and other vegetation along the movement pathways emphasized on Figure 8. Coyote brush, saltbush, toyon, common snowberry, California sagebrush, California wild rose (*Rosa californica*), California blackberry (*Rubus ursinus*), California aster, California buckwheat, gumplant, and a variety of other native species suitable for each area will be planted to provide cover that will be used by dispersing animals (see Section 9 for additional details).

**Timeline of Implementation:**

- Priority: Short Term
- Specific – Site preparation and planting would be performed outside the avian nesting season (i.e., it would be performed September 1 through January 31), preferably in fall, just prior to the start of the wet season

**Potential Assistance:**

- The City would seek volunteers through advertising on social media and the City's website for participation.

**Potential Grant Opportunities and Partnerships:**

- CDFW
- Santa Clara Valley Audubon Society
- GreenSpacesMV

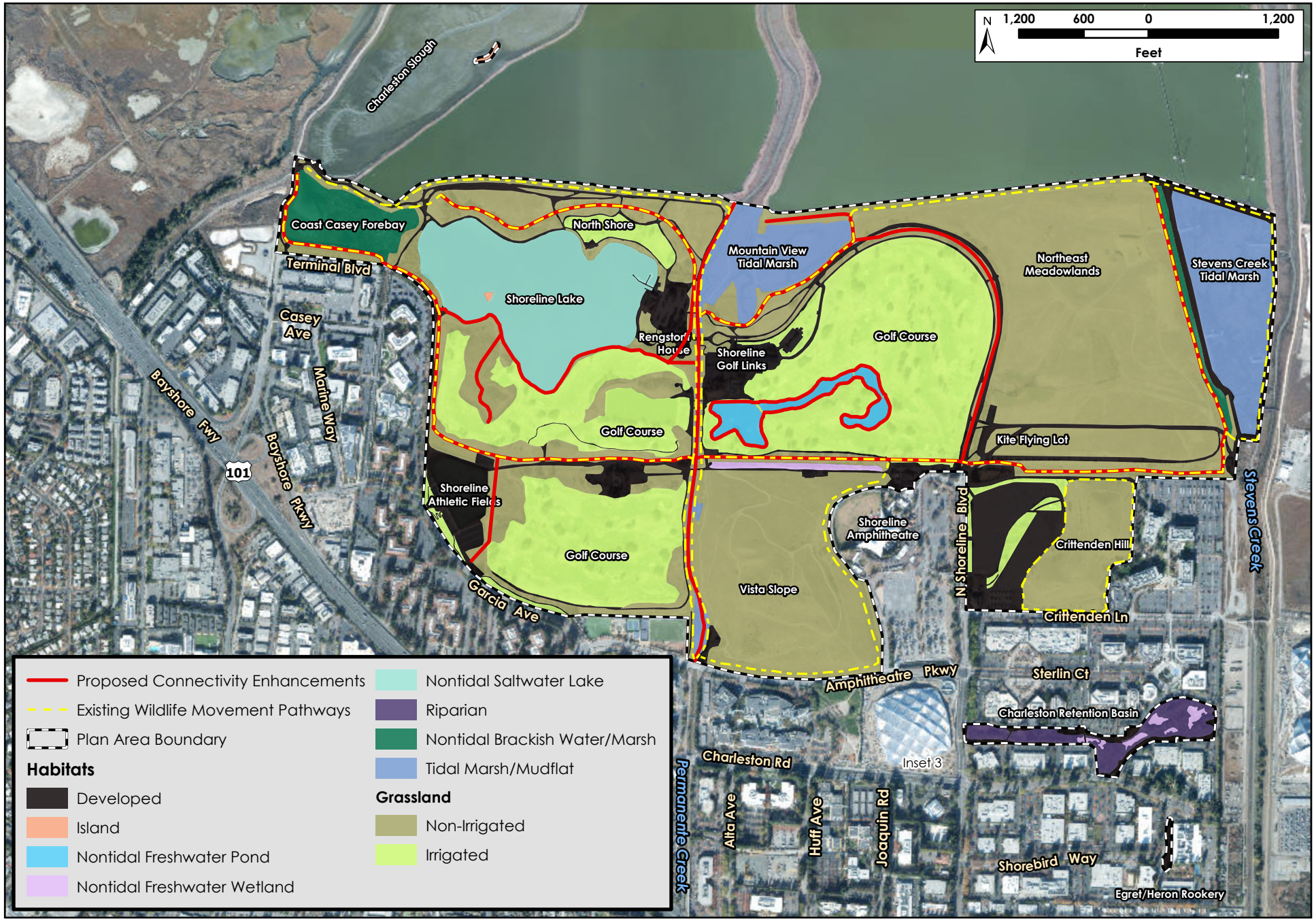


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**Figure 8. Habitat Connectivity Enhancements**
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**Potential Permitting Requirements:**

- No resource agency permits are necessary for these activities.

### 8.3.3 Shoreline Lake Island Enhancement

**Goal:**

- Decrease the rate of bank erosion of the island by employing basic principles and techniques of bank stabilization.

The City will take measures to decrease the rate of bank erosion on the island in Shoreline Lake by employing basic principles and techniques of bank stabilization such as:

- Building up a gradual slope on the banks of the islands with a combination of imported soils, tree logs, gravel, and/or riprap, so as to be able to absorb the energy of the waves that over-time slowly erodes the banks of the islands.
- On top of the built up banks and at the edges of the islands, plant low-growing, native, salt-tolerant vegetation such as saltgrass, marsh gumplant, and saltmarsh baccharis.

**Timeline of Implementation:**

- Priority: Long Term
- Specific – This work would be performed outside the avian nesting season (i.e., it would be performed September 1 through January 31)

**Potential Assistance:**

- The City's Public Works Department would manage the project, including permitting, design, and oversight of construction management. This would be a project in the City's Capital Improvement Plan.
- When the project is ready for implementation, the City would seek volunteers through advertising on social media and the City's website for participation, though a contractor would likely be necessary to implement these measures.

**Potential Grant Opportunities and Partnerships:**

- California State Coastal Conservancy.
- USFWS National Coastal Wetlands Conservation Grants Program.
- EPA Wetland Program Development Grant.
- South Bay Salt Pond Restoration Project
- CDFW
- California Department of Water Resources
- Santa Clara Valley Audubon Society
- GreenSpacesMV

- Save the Bay

**Potential Permitting Requirements:**

- Clean Water Act Section 404 permit from the USACE
- Clean Water Act Section 401 water quality certification from the RWQCB

### 8.3.4 Charleston Slough Island Restoration Opportunity

**Goal:**

- Modify the substrate on the island in Charleston Slough to facilitate vegetation management and make the island more attractive to nesting and roosting birds

As discussed in Section 8.2.3, the island in Charleston Slough has become overgrown with weeds, in part due to logistical challenges of reaching the island (e.g., by boat) to perform vegetation management. Without substrate modification to reduce the ability of plants to grow quickly on the island, adequate vegetation management on the island may be infeasible due to the need for frequent visits, by boat, to the island. To inhibit vegetation growth on the island, thereby creating conditions more similar to those on the island in Shoreline Lake, the City will modify the substrate of the island by adding some combination of salt, sand, shells, and pebbles to inhibit plant growth. These materials can be added in wood frames to help stabilize the nesting substrate and provide attractive nest sites for birds, as has been done effectively on the island in Shoreline Lake.

**Timeline of Implementation:**

- Priority: Long Term
- Specific – This work would be performed outside the avian nesting season (i.e., it would be performed September 1 through January 31)

**Potential Assistance:**

- The City would involve an engineer to develop a detailed plan to carry out these measures.
- When the project is ready for implementation, the City would seek volunteers through advertising on social media and the City's website for participation, though a contractor would likely be necessary to implement these measures.

**Potential Grant Opportunities and Partnerships:**

- California State Coastal Conservancy.
- USFWS National Coastal Wetlands Conservation Grants Program.
- EPA Wetland Program Development Grant.
- South Bay Salt Pond Restoration Project
- CDFW
- California Department of Water Resources

- Santa Clara Valley Audubon Society
- GreenSpacesMV
- Save the Bay

**Potential Permitting Requirements:**

- Clean Water Act Section 404 permit and Rivers and Harbors Act Section 10 authorization from the USACE if any fill will be placed in waters of the U.S.
- Clean Water Act Section 401 water quality certification from the RWQCB
- BCDC permit

### 8.3.5 Grassland Foraging Habitat Enhancement

**Goal:**

- Increase the prey base (i.e., small rodents) for burrowing owls and white-tailed kites, and increase the extent of breeding and foraging habitat for the monarch butterfly, by planting native perennial and annual plants

As described in Section 8.2.4, grassland habitat enhancement can improve conditions for burrowing owls, white-tailed kites, and monarch butterflies. The City has established a plan for enhancing habitat at Shoreline for pollinators, and specifically for monarchs, and with help from volunteers, has implemented this plan in one enhancement area, this area will be expanded during 2023. The City has identified an additional area, in the western part of Shoreline, for such enhancement. In each of these areas, the City will install irrigation, plant 50% milkweed and 50% other pollinator plants, and lay down wood chips to enhance pollinator habitat. The planting palette used for this enhancement effort is shown below in Table 5. Many of the plants in Table 5 can tolerate the salt content of recycled water, which may be used for irrigation.

**Table 5. Pollinator Habitat Enhancement Planting Palette**

| Scientific Name | Common Name |
|---|---|
| ***Milkweed Species*** | |
| *Asclepias fascicularis* | Narrowleaf milkweed |
| *Asclepias speciosa* | Showy milkweed |
| ***Perennial Species*** | |
| *Eriophyllum confertiflorum* | Golden yarrow |
| *Corethrogyne filaginifolia* | California aster |
| *Erigeron glaucus* | Seaside daisy |
| *Eriogonum fasciculatum* | California buckwheat |
| *Eriogonum giganteum* | St. Catherine's lace |
| *Grindelia sp.* | Gumplant |
| *Monardella sheltonii* | Coyote mint |

| | |
|---|---|
| *Ribes aureum* | Golden currant |
| *Rosa californica* | California wildrose |
| *Salvia apiana* | White sage |
| *Salvia clevelandii* | Cleveland sage |
| *Salvia dorrii* | Purple sage |
| *Solidago velutina* ssp. *californica* | California goldenrod |
| ***Annual Species*** | |
| *Eschscholzia californica* | California poppy |
| *Clarkia amoena* | Farewell-to-spring |
| *Collinsia* sp. | Chinese houses |
| *Clarkia unguiculata* | Mountain garland |
| *Gilia tricolor* | Bird's eye gilia |
| *Gilia capitata* | Globe gilia |
| *Layia* sp. | Tidy tips |
| *Phlox austromontana* | Mountain phlox |
| *Lupinus bicolor* | Miniature lupine |
| *Lupinus nanus* | Sky lupine |
| *Lupinus succulentus* | Arroyo lupine |
| *Nemophila menziesii* | Baby blue eyes |
| *Nemophila maculata* | Fivespot |
| *Phacelia tanacetifolia* | Tansy-leafed phacelia |
| *Helianthus bolanderi* | Bolanders sunflower |
| *Helianthus annuus* | Annual sunflower |
| *Limnanthes douglasii* ssp. *sulphurea* | Meadowfoam |

In addition to providing high-quality habitat for monarch butterflies, the native plants for this project have been chosen to provide nectar, pollen, seeds and berries to benefit a diversity of pollinators and other wildlife, including birds and small mammals. Thus, these enhancement areas will increase monarch butterfly populations and populations of species that serve as prey for the burrowing owl and white-tailed kite.

The City will identify other areas where similar plantings can occur within the Plan Area. Such areas do not have to be large; rather, planting patches of milkweed and nectar plants in scattered locations in landscaped areas and grasslands throughout the Plan Area would benefit monarch butterflies and other vertebrate and invertebrate species. No tropical milkweed will be included in these planting areas.

**Timeline of Implementation:**

- Priority: Short Term

- Specific – Site preparation and planting would occur in fall, just prior to the start of the wet season

**Potential Assistance:**

- The City would seek volunteers through advertising on social media and the City's website for participation.

**Potential Grant Opportunities and Partnerships:**

- Google
- CDFW
- Santa Clara Valley Audubon Society
- GreenSpacesMV

**Potential Permitting Requirements:**

- No resource agency permits are necessary for these activities.

### 8.3.6 Enhancement of Golf Course Ponds with Floating Islands

**Goal:**

- Enhance basking habitat for northwestern pond turtles by installing floating island structures in golf course ponds

As described in Section 8.2.5, the golf course ponds provide suitable habitat for the northwestern pond turtle, which rely on safe places to haul out of aquatic habitats in order to bask during the day. The City will consider installation of floating island structures in the middle of the west, central, and east ponds to provide safe basking sites. These structures may also be used by roosting waterfowl.

Floating island structures may be constructed from natural or man-made materials, or a combination of both. Numerous commercial floating island products are available in a variety of shapes and sizes. For example, Floating Islands West (2022) offers their BioHaven® Floating Islands which can be custom made in any shape or size. Constructed with 100% recycled PET plastics, the floating island base is constructed with individual planting pockets and can be planted with any aquatic or terrestrial plants. Floating islands may also be constructed using natural materials such as large logs or constructed mats of dead vegetation, such as tules and cattails. All floating islands would be anchored with a counter-weight that would sit on the bottom of the ponds, so the islands would remain in place.

**Timeline of Implementation:**

- Priority: Long Term
- Specific – This activity could occur at any time of year

**Potential Assistance:**

- The City would seek volunteers through advertising on social media and the City's website for participation.

**Potential Grant Opportunities and Partnerships:**

- CDFW

**Potential Permitting Requirements:**

- Because no fill would be associated with this enhancement, no Clean Water Act Section 404 permit from the USACE would be necessary. Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act from the RWQCB may be necessary for installation of these islands.

# Section 9. Wildlife Connectivity

Wildlife corridors are areas that connect two or more patches of habitat for a given species and that allow the safe movement of wildlife through otherwise unsuitable habitat. Wildlife corridors provide appropriate cover (e.g., from predators, and to make dispersing animals feel safe from nearby human activity) and appropriate conditions for movement, without impediments that would preclude animals from moving along the corridors. Movement corridors are especially important for allowing mammals, reptiles, invertebrates, and less mobile birds to move from one location or habitat patch to another. Movement along corridors can occur via quick, long-distance efforts for larger, more mobile animals such as coyotes, gray foxes, black-tailed jackrabbits, raccoons, or striped skunks. For smaller, less mobile animals such as mice, voles, snakes, and lizards, movement along corridors may occur gradually over time, or may even occur over a series of generations, as genes (rather than individuals) are transmitted along movement pathways.

The degree to which existing habitats in the Plan Area provide wildlife connectivity is discussed within the "Wildlife Corridors" section of each habitat description in Section 3 above, and existing areas of concentrated wildlife movement are depicted as "Primary Wildlife Corridors" on Figure 2. Permanente Creek, and the portion of the Mountain View Tidal Marsh through which it flows, represent the only aquatic or wetland wildlife corridor in the Plan Area, as fish and other aquatic animals disperse up and down the creek itself, and terrestrial animals move along its banks. The other wetland and aquatic habitats, such as Shoreline Lake and the nontidal freshwater pond, nontidal freshwater wetland, riparian, nontidal brackish water/marsh, and tidal marsh/mudflat habitats are not components of linear movement corridors for aquatic or wetland species. However, each of those habitat types provides important migratory stopover habitat for migrating birds and thus contributes to wildlife connectivity by providing habitat for migrating birds to rest and forage, building up fat reserves to continue their migrations.

Due to the intensive urbanization in areas south of Shoreline and the aquatic and wetland habitats associated with San Francisco Bay to the north, the primary value of the Plan Area to the movement of non-flying, terrestrial animals is its facilitation of movement between natural habitat areas to the west/northwest and habitat areas to the east (including Stevens Creek – which serves as a movement corridor through the urban matrix to the south – as well as other natural habitats to the east). Aside from the banks of Permanente Creek, the areas where movement by terrestrial animals is concentrated are areas supporting good vegetative cover along pathways with minimal impediments to dispersal and/or areas where impediments such as water concentrate wildlife activity. Such areas include the following:

- The upland/wetland interface between Shoreline and Ponds A1 and A2W to the north, and along the upper edges of the Mountain View Tidal Marsh and Stevens Creek Tidal Marsh, provide movement pathways for wildlife. In many areas, these pathways are not necessarily of high quality due to the paucity of dense cover for dispersing animals. However, because the aquatic and marsh habitats represent impediments to dispersal by terrestrial animals, these animals move preferentially along the edges of the aquatic habitats, taking advantage of whatever cover (such as marsh gumplant or other

vegetation in upland transition zones) is present. All terrestrial mammals and reptiles are expected to use these pathways to some extent. This upland/wetland interface is important to regional wildlife movement because it connects Stevens Creek and areas to the east with Adobe Creek and the Palo Alto Flood Basin to the west. The ability of animals to move between those areas to the east and west, using the Shoreline area, is important in allowing for dispersal of individuals and genes within and among populations.

- Vegetation along the edges of Coast Casey Forebay, such as coyote brush and tall herbaceous vegetation, is important in providing cover for animals dispersing through that area. The Forebay represents a relatively narrow area of terrestrial habitat between Charleston Slough and Pond A1 to the north and the intensively urbanized areas to the south, yet movement of gray foxes, smaller mammals, and reptiles through that area is important in allowing dispersal between Shoreline and the natural habitats (and animal populations to the west).
- Areas with trees and shrubs (for cover) southwest of Shoreline Lake, in the North Shore area, along the east-west service road through Shoreline, along all sides of Vista Slope, and south of the kite flying lot are expected to be used by dispersing animals. A variety of animals can certainly move through the golf course, and through the grasslands within the project site, and at night when there is no human activity, animals likely do this. However, during the day, animals dispersing through the Plan Area likely stay closer to cover and move along the edges of these areas.

Along each of these movement pathways, animals moving long distances (e.g., across Shoreline) must use artificial structures such as bridges to cross Permanente Creek. Although animals will show some reluctance to move through such high-human-use areas, they will still use such pathways. Many terrestrial animals, such as snakes and gray foxes, can swim well, and if necessary, they will swim across the creek. However, they prefer to use dry crossings. Many mammals, such as gray foxes, striped skunks, and raccoons, are most active at night (or at dawn and dusk), when pedestrian, bicycle, and foot traffic over bridges is limited, and animals are expected to make such crossings, using bridges, during those times.

In determining how and where movement corridors in the Plan Area would be enhanced, the City considered 1) the importance of a given area to wildlife movement and connectivity, either in its current condition or with enhancements; 2) whether human activity and/or dispersal impediments in or near a given area are too great for significant enhancement of connectivity to be achieved; 3) whether habitat in a given area requires enhancement to promote connectivity (as opposed to being suitable in its current condition); and 4) whether the presence of sensitive species that may be preyed upon by dispersing predators such as gray foxes constrain habitat enhancement for connectivity. The last criterion influenced decisions regarding enhancement of connectivity considerably due to the importance of Shoreline to species that need protection from predators rather than enhancement of connectivity for those predators. For that reason, the City decided not to enhance movement corridors via connectivity-focused plantings near the Mountain View Tidal Marsh or Stevens Creek Tidal Marsh, or very close to areas supporting burrowing owls.

The areas where the City intends to promote wildlife movement in an east-west direction through Shoreline are shown on Figure 8. These areas were selected for the following reasons:

- They connect the northwest corner of Coast Casey Forebay through the Plan Area to Stevens Creek, thereby providing a connection through the entire Plan Area.
- They are not located so close to tidal marsh or the highest-quality burrowing owl habitat that increased use of these pathways by predators such as gray foxes will result in a substantial increase in predation risk for sensitive species.
- They take advantage of existing trees, shrubs, and other vegetation that currently exists in a number of areas, thereby reducing the additional planting that the City will need to perform.
- Although these pathways do occur close to human-use areas, the east-west service road through the park is not open to the general public for vehicular use and is thus not heavily used by vehicular traffic. The only public road that these pathways cross is the entrance road to Shoreline Park. From dusk to dawn, when many animals would be dispersing, there will be little traffic along these pathways.
- These pathways take advantage of the existing service road crossing of Permanente Creek.
- These pathways are roughly centrally located within Shoreline, and are connected to areas to the north and south via Permanente Creek, so that wildlife moving in or through other areas will be able to access these enhanced east-west movement pathways relatively easily.

These pathways will be enhanced for wildlife movement through the planting of additional cover of dense shrubs and tall herbaceous vegetation. Coyote brush, saltbush, toyon, common snowberry, California sagebrush, California wild rose, California blackberry, California aster, California buckwheat, gumplant, and a variety of other native species suitable for each area will be planted to provide cover that will be used by dispersing animals. These linear strips of cover will be at least 10 feet in width. It is expected that such movement pathways would be used by all of the mammal and reptile species occurring in the Plan Area, as well as many birds. Incorporation of milkweed and nectar plants would facilitate the dispersal of pollinators along these corridors as well.

# Section 10. Landscaping

This section describes the different types of landscaping projects that the City will implement, locations for such landscaping, and how that landscaping will be beneficial to wildlife, aesthetics, and integrated pest management. A suitable planting palette for each habitat type is provided, and includes species that are native and easily maintained using recycled water for different types of landscaping projects throughout the Plan Area. These guidelines and planting palettes are adopted from the Shoreline Regional Wildlife Area – Maintenance Project Guidelines (McCluskey and Higgins 2013), with a few modifications to align with the habitat types described in this Shoreline Wildlife Management Plan and to exclude landscaping guidelines for locations outside the Plan Area.

Primary landscaping areas to be considered are shown on Figure 9 and include:

- Vegetated areas surrounding overlooks, bench areas, and vegetated islands located along the Bay Trail, north of the North Shore area
- Sections of the northwestern banks of Shoreline Lake
- The margins of the western portion of the golf course
- The southern margin of the Vista Slope area
- The vegetated strips found along North Shoreline Boulevard within Shoreline

In addition to these identified primary landscaping areas, other landscaping opportunities may be found in the enhancement and landscaping of the North Shore playground and open grassy areas; the vegetated margins along the Permanente Creek Trail and golf course pathways; the field north of the kite flying lot; the southern margin of the kite flying lot and Northeast Meadowland; and general vegetated areas surrounding developed locations such as the heron/egret rookery, the golf course clubhouse, Rengstorff House, Shoreline Lake facilities and associated parking lot vegetated strips and islands.

### 10.1.1 Integrated Pest Management

Planting native species in landscaping projects is an important part of any integrated pest management effort, given that native plantings will attract more beneficial insects such as predatory beetles, flies, lacewings, and parasitic wasps, which then feed on various pest insects or mites. Some of the best native plants for providing habitat for pest-eating insects are listed in Table 6 (UC Davis Arboretum and Public Garden 2014, Russell 2016). All these native plant species are incorporated into one or more of the recommended planting palettes for each habitat described below.


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H. T. HARVEY & ASSOCIATES
Ecological Consultants

**Figure 9. Landscaping Opportunities**
Shoreline Wildlife Management Plan
January 2023

**Table 6. Example Native Plants that Provide Habitat for Beneficial Insects**

| Scientific Name | Common Name |
|---|---|
| *Eriogonum fasciculatum foliolosum* | California buckwheat |
| *Rhamnus californica tomentella* | California coffeeberry |
| *Ceanothus griseus* | California lilac |
| *Baccharis pilularis* | Coyote brush |
| *Salvia clevelandii* | Cleveland sage |
| *Sambucus mexicana* | Elderberry |
| *Achillea millefolium* 'Island Pink' | Island pink yarrow |
| *Nassella pulchra* | Purple needlegrass |
| *Heteromeles arbutifolia* | Toyon |

## 10.2 Landscaping Habitat Types and Locations

### 10.2.1 Marsh/Upland Transition Zones and Levees

Transition zones between wetland and upland habitats are found in the Plan Area primarily around the Mountain View and Stevens Creek Tidal Marshes, along Permanente Creek, and around Coast Casey Forebay, and along the northern side of the Bay Trail. The upland levees and transition zones that are closer to former salt ponds to the north are strongly influenced by wind and saline soil conditions. These are areas that provide overlooks and benches, where barren and ruderal vegetated areas could be enhanced with landscaping. This would not only benefit wildlife in terms of providing additional foraging, nesting, and cover, including attracting more pollinator species, but would enhance the aesthetic of the area by providing colorful flowering plants such as California sea lavender (*Limonium californicum*) and seaside daisy (*Erigeron glaucus*). A suggested planting palette for landscaping in these saline and brackish marsh upland transition zone/levee habitats is provided in Table 7 below.

**Table 7. Suggested Planting Palette for Landscaping in Salt Marsh/Wetland and Upland Levees**

| Scientific Name | Common Name |
|---|---|
| ***Bushes*** | |
| *Grindelia hirsutula* var. *maritime* | San Francisco gumplant* |
| *Lavatera assurgentiflora* | Malva rose |
| *Salvia clevelandii* | Cleveland's sage |
| *Baccharis pilularis* var. *consanguinea* | Coyote brush* |
| ***Herbaceous Perennials/Ground Cover*** | |
| *Distichlis spicata* | Salt grass* |
| *Frankenia salina* | Alkali-heath* |

| Scientific Name | Common Name |
|---|---|
| *Cotula coronopifolia* (naturalized) | Brass buttons* |
| *Erigeron glaucus* | Seaside daisy* |
| *Amsinckia spectabilis* | Coast fiddleneck |
| *Armeria maritime* ssp. *californica* | Thrift |
| *Rumex maritimus* | Golden dock* |
| *Eschscholzia californica* var. *maritima* | California poppy |
| *Salvia sonomensis* | Sonoma sage |
| *Spergularia macrotheca* var. *macrotheca* | Perennial sand-spurry |
| *Sisyrinchium californicum* | Golden-eyed grass* |
| *Jaumea carnosa* | Fleshy jaumea* |
| *Limonium californicum* | California sea lavender* |
| *Atriplex patula* var. *obtusa* | Common orache* |
| Suaeda californica | California seablite* |
| Anemopsis californica | Yerba mansa |
| ***Semi-Aquatic Vegetation*** | |
| *Triglochin maritima* | Seaside arrow-grass* |
| *Scirpus californicus* | California bulrush* |
| *Spartina foliosa* | California cordgrass* |
| *Puccinellia nutkaensis* | Alaska alkali grass* |
| *Salicornia pacifica* | Pacific pickleweed* |

* Indicates salt-tolerant species

### 10.2.2 Riparian Corridors, Freshwater Marshes and Ponds

These sites are primarily influenced by seasonal freshwater runoff, rain capture, or recycled water flows. Riparian corridors and freshwater marshes are found in the Charleston Retention Basin and along the Shoreline service road, and freshwater ponds are found on the golf course. Sections 3.2, 3.3, and 3.4 describe the benefits of these habitats to a number of wildlife species. Landscaping can be performed in or immediately adjacent to these habitats to increase the value of these sensitive habitats to wildlife in the Plan Area; activities within these habitats may necessitate resource agency permits, although activities in immediately adjacent areas can achieve similar benefits without the need for permits. Many of the plant species listed below provide colorful flowers and attract a variety of butterflies, adding to the aesthetic quality of these areas. A suggested planting palette for landscaping within these habitats is provided in Table 8 below.

**Table 8. Suggested Planting Palette for Riparian and Freshwater Landscaping**

| Scientific Name | Common Name |
|---|---|
| ***Shrubs*** | |
| *Salix laevigata* | Red willow* |
| *Salix lasiolepis* | Arroyo willow |
| *Salix lucida* ssp. *lasiandra* | Shining willow |
| *Salix exigua* var. *hindsiana* | Narrowleaf willow |
| ***Herbaceous Perennials*** | |
| *Veronica americana* | American brooklime |
| *Scirpus acutus* var. *occidentalis* | Hardstem bulrush |
| *Scirpus cernuus* var. *californicus* | Low bulrush |
| *Scirpus robustus* | Robust bulrush |
| *Scirpus microcarpus* | Smallfruit bulrush |
| *Sparganium eurycarpum* | Giant burreed |
| *Typha latifolia* | Broadleaf cattail |
| *Typha angustifolia* | Narrowleaf cattail |
| *Typha domingensis* | Southern cattail |
| *Aquilegia formosa* | Western columbine |
| *Ceanothus griseus* | California lilac |
| *Equisetum hyemale* ssp. *affine* | Common scouring rush |
| *Juncus balticus* | Baltic rush |
| *Mimulus aurantiacus* | Bush monkeyflower |
| *Mimulus guttatus* | Common monkeyflower |
| *Oenanthe sarmentosa* | Pacific oenanthe |
| *Potentilla anserina* ssp. *pacifica* | Pacific cinquefoil |
| *Sisyrinchium californicum* | Golden-eyed grass |

* Indicates salt-tolerant species

### 10.2.3 Grasslands and Other Upland Areas

These areas are located primarily within the North Shore of Shoreline Lake, Northeast Meadowlands, Vista Slope, and around the golf course. Landscaping in these grassland areas, combined with the enhancement efforts in these habitats as described in Section 8.2.5 and 8.2.6, will lead to enhanced foraging for burrowing owls, white-tailed kites, and other grassland foragers, as well as enhancement of habitat for monarch butterflies and other pollinators. This in turn will enhance the wildlife and wild flower viewing opportunities for the public. A suggested planting palette for landscaping within these grassland habitats is provided in Table 9 below.

**Table 9. Suggested Planting Palette for Upland and Ruderal Grasslands**

| Scientific Name | Common Name |
|---|---|
| ***Shrubs*** | |
| *Heteromeles arbutifolia* | Toyon |
| *Rhamnus californica* | California coffeeberry |
| *Ceanothus thyrsiflorus* | Blue-blossom* |
| *Baccharis pilularis* var. *consanguinea* | Coyote brush* |
| *Ribes sanguineum* var. *glutinosum* | Pink-flowered currant* |
| *Sambucus mexicana* | Blue elderberry |
| *Sambucus racemosa* | Red elderberry* |
| *Mimulus aurantiacus* | Bush monkeyflower |
| *Rosa californica* | Wild rose* |
| *Artemisia californica* | Coast sagebrush |
| *Salvia spathacea* | Hummingbird sage |
| *Salvia mellifera* | Black sage |
| *Symphoricarpos albus* var. *laevigatus* | Common snowberry |
| *Amelanchier alnifolia* | Serviceberry |
| ***Herbaceous Perennials*** | |
| *Melissa officinalis* | Beebalm |
| *Scrophularia californica* | Beeplant |
| *Dichelostemma capitatum* | Bluedicks |
| *Eriogonum nudum* var. *nudum* | Nakedstem buckwheat |
| *Clarkia unguiculata* | Elegant clarkia |
| *Amsinckia spectabilis* | Coast fiddleneck |
| *Gilia capitata ssp. capitata* | Globe gilia* |
| *Lupinus succulentus* | Arroyo lupine |
| *Lupinus bicolor* | Miniature lupine |
| *Lupinus affinis* | Sky lupine |
| *Chlorogalum pomeridianum* | Soap-plant |
| *Allium dichlamydeum* | Coast onion |
| *Castilleja densiflora* | Common owl's clover |
| *Triphysaria floribundus* | San Francisco owl's clover |
| *Castilleja subinclusa ssp. franciscana* | Franciscan paintbrush |
| *Castilleja wightii* | Seaside paintbrush |

| Scientific Name | Common Name |
|---|---|
| *Penstemon heterophyllus* var. *heterophyllus* | Foothill penstemon |
| *Plantago erecta* | California plantain |
| *Eschscholzia californica* | California poppy |
| *Papaver californicum* | Fire poppy* |
| *Rosa californica* | Wild rose* |
| *Spergularia macrotheca* | Sand spurry* |
| *Eriophyllum staechadifolium* | Seaside woolly sunflower* |
| *Achillea millefolium* 'Island Pink' | Island pink yarrow |
| *Triteleia hyacinthina* | White triteleia |
| *Achillea millefolium* | Common yarrow |
| ***Grasses*** | |
| *Bromus carinatus* var. *carinatus* | California Brome |
| *Festuca californica* | California Fescue |
| *Nassella pulchra* | Purple Needlegrass |
| *Elymus glaucus* | Blue Wild Rye |

* Indicates salt-tolerant species

### 10.2.4 Development Transition Areas

Development transition areas are found along the service road and in transitional areas between developed areas, grassland, and seasonal wetland habitats. Some large trees, such as oaks and buckeyes, may be planted in upland areas along the service road, while riparian species such as willows may be planted in wetter areas. These plantings may complement those described in Section 8.3.2 and Section 9 for enhancement of habitat connectivity along the service road. A suggested planting palette for landscaping within this habitat is provided in Table 10 below.

**Table 10. Suggested Planting Palette for Transition Area Landscaping**

| Scientific Name | Common Name |
|---|---|
| ***Shrubs*** | |
| *Baccharis pilularis* var. *consanguinea* | Coyote brush* |
| *Ribes sanguineum* var. *glutinosum* | Pink-flowered currant* |
| *Salix laevigata* | Red willow* |
| *Sambucus racemose* | Coast red elderberry |
| *Rosa californica* | Wild rose* |

| Scientific Name | Common Name |
|---|---|
| *Salvia mellifera* | Black sage |
| ***Herbaceous Perennials*** | |
| *Melissa officinalis* | Beebalm* |
| *Rubus ursinus* | California Blackberry |
| *Ceanothus griseus* | Carmel Ceanothus |
| *Petasites frigidus* var. *palmatus* | Colt's Foot |
| *Zauschneria californica* | California Fuschia |
| *Ribes speciosum* | Fuschia Flowering Gooseberry |
| *Salvia sonomensis* | Creeping Sage |
| *Salvia spathacea* | Hummingbird Sage |
| *Symphoricarpos albus* | Common Snowberry |
| *Chlorogalum pomeridianum* | Soap-plant |
| *Cynoglossum grande* | Hound's Tongue |
| ***Grasses*** | |
| *Bromus carinatus* var. *carinatus* | California Brome |
| *Festuca californica* | California Fescue |
| *Nassella pulchra* | Purple Needle Grass |
| *Elymus glaucus* | Blue Wild Rye |
| ***Sandy Soils*** | |
| *Ceanothus gloriosus* var. *gloriosus* | Point Reyes ceanothus |
| *Abronia latifolia* | Yellow sand verbena* |
| *Abronia umbellata* ssp. *breviflora* | Pink sand verbena* |

* Indicates salt-tolerant species

### 10.2.5 Formal Landscaping Areas

Vegetated areas found in developed areas, such as around buildings (e.g., Rengstorff House, golf course clubhouse, Shoreline Lake boathouse, flare station, etc.), in public areas, and along streets and parking lots, may be landscaped more formally than natural habitats. Native plants should be used as much as possible; however, because the Rengstorff House is a historic home, native plantings will be balanced with plants that meet the historical aesthetic of this structure, such as the rose garden and other nonnative plantings in that location. As nonnative plants within these formal landscaping areas die, they should be replaced with native plants having similar growth forms and growing requirements. Many of the plants in the planting palette for this habitat are evergreen and bloom over long periods; the trees and shrubs may serve as vegetation screens and provide nesting habitat for a variety of bird species. The perennials listed below attract many pollinators and beneficial insects, as does the native Dutchman's pipe (*Aristolochia californica*), whose flowers attract carrion-feeding insects

with its unpleasant order. The plant is also the only host plant of the pipevine swallowtail butterfly (*Battus philenor*). A suggested planting palette for landscaping within these areas is provided in Table 11 below.

**Table 11. Suggested Planting Palette for Formal Landscape Areas**

| Scientific Name | Common Name |
|---|---|
| ***Shrubs*** | |
| *Ceanothus thyrsiflorus* | Blue blossom* |
| *Fremontodendron californicum* | Common flannelbush |
| *Lupinus albifrons* var. *collinus* | Bay Area silver lupine* |
| *Ceanothus gloriosus* var. *gloriosus* | Point Reyes ceanothus |
| *Ceanothus purpureus* | Hollyleaf ceanothus |
| *Salvia sonomensis* | Sonoma ceanothus |
| *Baccharis pilularis* 'Twin Peaks' / *Baccharis pilularis* 'Pigeon Point' | Dwarf coyote brush* |
| ***Herbaceous Perennials*** | |
| *Eriogonum fasciculatum* | California buckwheat |
| *Zauschneria californica* | California fuschia |
| *Ribes speciosum* | Fuschia flowering gooseberry |
| *Mimulus aurantiacus* | Bush monkeyflower |
| *Salvia sonomensis* | Sonoma sage |
| *Baccharis salicifolia* | Mulefat |
| ***Sandy Soils*** | |
| *Ceanothus gloriosus* var. *gloriosus* | Point Reyes ceanothus |
| *Abronia latifolia* | Yellow sand verbena* |
| *Abronia umbellata* | Coast sand verbena* |
| ***Vines*** | |
| *Clematis ligusticifolia* | Virgin's bower |
| *Aristolochia californica* | Dutchmans pipe |

* Indicates salt-tolerant species

## 10.3 Landscaping Maintenance Training

Prior to any landscaping maintenance projects, training will be provided to City maintenance personnel and any outside contractors that will be performing the work. Such training will include the following:

- Protocols and procedures to follow to stay in compliance with all wildlife avoidance and minimization measures as described below in Section 12. These measures will focus on the wildlife species that may occur within the type of habitat or location where the landscaping project is proposed.
- BMPs to follow as related to the type of habitat or location where the landscaping project is proposed.
- BMPs for pathogens, as applicable to the landscaping activity at hand, listed in Section 7.3.2.
- A list of recommended native plants to use in the type of habitat or location where the landscaping project is proposed.
- Specific planting guidelines (i.e., timing, species composition percentage, needed irrigation) for the type of habitat or location where the landscaping project is proposed.
- Pruning guidelines, such as correct pruning methods, avoidance of seed and flower removal during pruning, and which species should not be pruned.
- Follow-up maintenance duties including irrigation, weeding, and control measures for invasive plant species.

# Section 11. Landfill Operations

Shoreline is built upon a closed landfill that is owned and operated by the City, and consists of approximately 544 ac of landfill cells that occur throughout Shoreline (Figure 10). The landfill regularly settles, creating cracks within the landfill cap that may allow intrusion by water, which can then mix with the underlying waste and release toxic gases and leachate. To prevent this from happening, regular maintenance is required year-round. This maintenance work includes the monitoring and operation of landfill gas collection systems, routine maintenance and repairs to the landfill cap, leachate removal systems, and the monitoring of groundwater.

The City must stay in compliance with an approved Postclosure Maintenance Plan that includes permit requirements regulated by the Federal New Source Performance Standards (NSPS) and Emission Guidelines (EG), Bay Area Air Quality Management District, the RWQCB, the California Air Resources Board, the Local Enforcement Agency, and the Department of Resources Recycling and Recovery (CalRecycle). Maintenance and monitoring requirements include: 1) Landfill Emission Control System, 2) Repairing the Landfill Cap, 3) Monitoring Surface Emissions, 4) Monitoring System Components (Leak Testing), 5) Cover Integrity Monitoring (Cap Inspections), 6) Wellhead Monitoring, 7) Troubleshooting Gas Systems, and 8) California Air Resources Board (CARB) Regulations. For complete details about these maintenance and monitoring requirements, refer to the 2012 Shoreline Burrowing Owl Preservation Plan (Trulio and Higgins 2012).

Most landfill maintenance projects can be planned in advance using the Project Evaluation and long-term, large-scale coordination procedures and guidelines as outlined below in Section 12.1 and 12.2. For any landfill operations that are to be conducted in burrowing owl habitat by City personnel or outside contractors, including utility companies (e.g., PG&E), procedures will be followed as outlined in Specific Protocols G section in the Burrowing Owl Preservation Plan. For all other landfill operations throughout the Plan Area, that occur outside of recognized burrowing owl habitat areas, all procedures, guidelines, and avoidance and minimization measures as outlined in Section 12 of this Shoreline Wildlife Management Plan will be followed.


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**Figure 10. Landfill Map**

Shoreline Wildlife Management Plan
January 2023

# Section 12. Protocols and Procedures

This section provides a quick reference guide for a number of protocols and procedures to facilitate simple and easy implementation of maintenance work within the Plan Area while adhering to environmental requirements, per the Shoreline Regional Wildlife Area – Maintenance Project Guidelines (McCluskey and Higgins 2013).

## 12.1 Project Evaluations, Procedures, and Guidelines

To reduce impacts on habitats, plants, and wildlife, the City performs Project Evaluations, which are required for all projects that could possibly impact the habitat of burrowing owls or other sensitive plant and animal species. As a general rule, trees and other vegetation shall not be trampled, cleared or removed without a specific need or a Project Evaluation. For each such activity, the City will complete a Project Evaluation form, which requires the following information:

1. A detailed description of the project, including a clear justification of the need for the project that cites the regulations or laws that require the action, its location, start date, completion date, and contact person. In addition to quantifying the exact acreage of the project (including proposed haul routes, staging area, fill zone, etc.), the description will explain the need for the size of the project impact.
2. A map of the location of the project showing the boundary of the project site.
3. This boundary will be marked by both the originator of the Project Evaluation and a City-designated biologist.
4. Temporary fencing, barricades, or other devices shall be utilized to provide containment of the approved activities.
5. All outside contractors, including truck drivers and utility companies (e.g., PG&E), will be accompanied or will take a workshop providing information as to the sensitivity of the site, the location of nearby active burrowing owl burrows and other sensitive species and habitats, and the routes to be taken at all times.
6. A list of all avoidance and minimization measures (AMMs; see Section 12.2 below); general management guidelines (see Section 8.1 above); BMPs to minimize the introduction and spread of invasive plants; BMPs for pathogens, as applicable to the project in question, as listed in Section 7.3.2; and Congdon's tarplant avoidance and minimization measures, as described in Section 3.1.4. This list will be established by a City-designated biologist, taking into account the location of the project relative to sensitive habitats and species, the time of year (e.g., relative to the breeding season), and any other relevant factors.
7. A list of vegetation; burrowing owl foraging habitat, nesting habitat, and ground squirrel restoration mitigations; and restoration activities associated with other sensitive habitats, plants, and animals to be implemented when the project is completed.
8. The Project Evaluation will be signed by both the originator and a City-designated biologist after the site has been marked.

Although a Project Evaluation can identify potential impacts to wildlife, it is the responsibility of the personnel performing the work to comply with the evaluation. Personnel should stop and contact a biologist if any wildlife

are discovered in or adjacent to trees or vegetation while work is being conducted at any time, whether a Project Evaluation is required or not. Any project not completed within 5 working days after approval by a biologist may be required to have another biological evaluation.

In some cases, the scope of the Project Evaluation may require that a biologist be on site for the duration of the work. If that is the case a note will be made on the Project Evaluation stating that a biologist will be onsite during the project to assess impacts and direct avoidance measures. This procedure will be approved by the City beforehand.

These guidelines are a supplement to the Burrowing Owl Preservation Plan (Trulio and Higgins 2012) and are not meant to replace or supersede the requirements of that document.

**Compliance with Project Evaluation Avoidance Measures**

In the event that a project exceeds the approved scope or avoidance measures of a Project Evaluation the following procedures will be followed:

1. A biologist will be contacted by the originator and a new supplemental evaluation will be generated to assess the impacts on natural systems and wildlife in addition to any applicable laws.
2. In the event that impacts to natural systems or wildlife are determined to be substantial or potential non-compliance with any applicable laws are found, the matter will be escalated within the City.
3. The original Project Evaluation and the completed supplemental evaluation along with a biologist's recommendation will be escalated for appropriate action, which may include requiring a procedural review or identifying communication deficiencies, to reduce the possibility of projects exceeding the approved scope of the Project Evaluation.
4. In the event that no significant impacts to natural systems or wildlife are found and no potential non-compliance with any applicable laws is found, the originator of the Project Evaluation will develop operational procedures to prevent re-occurrences.

**Regular Maintenance**

*Long-Term, Large Scale Coordination*

Because Project Evaluations are project-specific, they are not good tools for coordinating among projects, setting goals for limiting impacts, or evaluating cumulative impacts of projects. Long-term, large-scale projects require coordination meetings at least several times per year. At the beginning of the year, likely projects should be brought forward and reviewed. This will allow for discussion of projects that may harm sensitive habitats or species, and it will provide an opportunity to limit the footprint of projects or negotiate project timing, as appropriate, and the chance to evaluate and reduce the cumulative impacts of projects on natural systems.

**Routine Maintenance**

Routine maintenance items are planned, non-urgent, regulatory and non-regulatory items that can be scheduled beforehand and are not required to be done on a priority or emergency basis. Routine maintenance items that may harm natural systems or impact wildlife directly or indirectly will require a Project Evaluation.

Ongoing vegetation management such as weekly mowing of lawn areas do not require an evaluation for each mowing; rather, if the work repeats every 10 days, one Project Evaluation that identifies possible impacts and avoidance measures will suffice unless nesting birds or protected/listed species are present. The initial Project Evaluation will be updated periodically by a biologist as needed.

Project Evaluations are always required in the Plan Area when:

- Projects are located within 1500 ft of sensitive/protected habitats or species.
- Projects are located in any areas of natural vegetation or open space.

**Priority Projects**

A priority project is associated with the protection of health and safety standards or regulatory requirements and must be completed within (5) calendar days.

Priority projects will follow this protocol:

1. Maintenance Coordinator will contact appropriate City staff and/or designee(s) to discuss the need for the project.
2. A Project Evaluation will be completed with a detailed description of the proposed project including a clear justification, evaluated by a qualified biologist(s), that explains the need for the project, including any laws that may require the project be completed.
3. A biologist will administer a pre-project survey to ensure compliance with local, state, and federal environmental laws.
4. If the project may result in take, destruction of a nest or eggs of any bird, or impacts to a protected species, the Community Services Director or his/her designee will contact the CDFW and/or USFWS (depending on which agency or agencies regulate the species in question) to determine feasible protection measures, mitigations, or permits given the requirement for health and safety standards or regulatory requirements.
5. A City-approved biologist will monitor the project and provide a report on the project's impacts to the Community Services Director or his/her designee and, if needed, CDFW and/or the USFWS.

**Emergency Projects**

An emergency project is one that must be done immediately to meet health and safety standards or regulatory requirements. Emergency projects are only those in which there is an imminent threat to public health or safety or which are required by regulatory requirements.

Emergency projects will follow this protocol:

1. Maintenance Coordinator will contact the appropriate City staff and/or designee(s) to discuss the need for the project.
2. A Project Evaluation will be completed, if there is time, or after the project if there is not time with a detailed description of the proposed project. It shall include a clear justification, evaluated by a qualified

biologist, that explains the need for the project, including any laws that may require the project be completed.

3. A biologist will administer a pre-project survey to evaluate the impacts to wildlife and ensure compliance with local, state and federal environmental laws.
4. If possible, a meeting will be held with appropriate City staff and/or designee(s)and other interested parties to discuss the need for the project, feasible avoidance measures, and impacts to natural systems. If it is necessary that the project result in take, destruction of a nest or eggs of any bird, or impacts to a protected species, the Community Services Director or his/her designee will contact the CDFW and/or the USFWS to determine feasible protection measures or obtain needed permits to comply with requirements for health and safety standards or other regulatory requirement.
5. A City-approved biologist will monitor the project and provide a report on the project's impacts to the Community Services Director or his/her designee and, if needed, CDFW and/or the USFWS.
6. If an emergency occurs on a weekend and City Staff are unable to contact the appropriate City staff and/or designee(s), the City Staff will follow these procedures:
    a. Leave a voice mail message for the appropriate City staff and/or designee(s) describing the emergency and the necessity for immediate action.
    b. Trucks and equipment must stay on roadways whenever possible. When they must leave the service roads, the crew will delineate a travel path that avoids nesting birds and protected species when possible.
    c. Following the emergency project, the crew and/or other appropriate City staff and/or designee(s)will send an e-mail followed by the Project Evaluation to the Community Services Director or his/her designee(s) that describes the work done and the avoidance measure taken. If non-compliance with local, state or federal environmental laws occurs, the Community Services Director or his/her designee will contact CDFW and/or the USFWS by phone.
    d. A biologist will conduct a supplemental evaluation and present it to the Community Services Director and responsible agencies.

## 12.2 Avoidance and Minimization Measures

The following Avoidance and Minimization Measures (AMMs) are to be followed for any maintenance and management actions, including landfill maintenance operations within the Plan Area. These AMMs consolidate measures from the Shoreline Regional Wildlife Area – Maintenance Project Guidelines (McCluskey and Higgins 2013) with those identified above (e.g., for nesting birds in Section 5.4) to apply to all management and maintenance activities in the Plan Area.

- A Project Evaluation is required year-round for any trimming of trees/vegetation in riparian areas that are within 100 ft of a wetland or top of creek bank.
- Pre-activity surveys for nesting birds will be conducted by a qualified biologist prior to any maintenance or management work activities on buildings or other infrastructure, maintenance and/or removal of trees and shrubs, or mowing of grassland areas that occurs between January 15 and September 15 (for raptor species) and between February 1 and August 31 (for non-raptor species). These surveys will be

conducted no more than seven days prior to the initiation of these activities in any given location within the Plan Area. During each survey, a biologist will inspect all potential nesting habitats (e.g., trees, shrubs, and buildings) within the work area; within 300 ft of the work area for raptor nests; and within 100 ft of the work area for nests of non-raptors.

- If an active nest (i.e., a nest with eggs or young, or any completed raptor nest attended by adults) is found sufficiently close to work areas to be disturbed by these activities, a biologist shall determine the extent of a disturbance-free buffer zone to be established around the nest. Typical buffer zones are 300 ft for raptors and 100 ft for non-raptors. However, a biologist may determine that a reduced buffer is appropriate in some instances. For example, topography, buildings, or vegetation that screen a nest from the work area, or very high existing levels of disturbance (indicating the birds' tolerance to high levels of human activity), may indicate that a reduced buffer is appropriate. No new activities (i.e., work-related activities that were not ongoing when the nest was established) should occur within the buffer as long as the nest is active. Activities may also occur closer to active nests if a qualified biologist monitors the behavior of the birds prior to commencement of the activity, to establish the birds' baseline behavior, and then as the activity begins; if the birds show no evidence that they are disturbed by the activity, then it may continue with periodic monitoring by a qualified biologist.
- A 100-ft buffer will be maintained and marked around the island in Shoreline Lake during the breeding season. During the nonbreeding season, the same 100-ft buffer will remain, which will limit the disturbance level to birds that may be using the islands for roosting and refugia during the fall and winter.
- Any trenches that remain unfilled overnight require a pre-activity wildlife morning survey, year round.
- Any planned events with over 50 participants that occur year round, require a wildlife activity site survey prior to the event. Events with less than 50 participants that are adjacent to sensitive sites identified by a biologist will require a wildlife activity site survey prior to the event.
- For any activity occurring within 700 feet of Mountain View Tidal Marsh or Stevens Creek Tidal Marsh during the avian breeding season (February 1 through August 31), a biologist will determine whether the activity will result in noise or activity of vehicles, equipment, or personnel that exceed baseline conditions and that could therefore disturb California Ridgway's rails or California black rails. If a biologist determines that the activity could disturb nesting rails, then it will be delayed until after the nesting season; it will proceed only if results of protocol-level surveys have determined that no rails are present close enough to be disturbed; or it will proceed only after coordination with the USFWS and CDFW.
- For any activity occurring within 20 feet of the edge of wetland habitat within the Coast Casey Forebay, Mountain View Tidal Marsh, or Stevens Creek Tidal Marsh, a biologist will determine whether the activity could impact salt marsh harvest mice or salt marsh wandering shrews. If so, a biologist will identify measures to be implemented to avoid direct impacts on these species. Such measures may include installation of exclusion fencing between the activity and suitable habitat for those species; hand-removal of vegetation within the impact area to encourage mammals to move into the marsh;

pre-activity surveys and/or monitoring of the activity (including exclusion fence installation and vegetation removal) by a qualified biologist; and others.

## 12.3 Updates to Standard Operating Procedures

To ensure compliance with all state and federal regulatory requirements as outlined in Section 2, and all Project Evaluation and AMM requirements described in this section, standard operating procedures (SOPs) for City maintenance crews and Shoreline staff will be adopted from this Plan. Contractors and utility workers working on projects located in the Plan Area will be provided with updated SOPs to ensure that their work is in compliance with all guidelines, procedures, and protocols as outlined in the Plan. Refer to Sections 12.1 and 12.2 above for information about when and where Project Evaluations are necessary, the timing of project work activities, and when and where associated buffer zones are applicable and necessary in any given location of the Plan Area.

## 12.4 Staff Training

Within one month following the adoption of this Plan by the City, Shoreline staff, and other relevant City personnel will attend a worker environmental awareness training that covers the contents of this Plan. All new City hires who may be in a position to conduct, oversee, or inform Shoreline management or maintenance activities will be required to take this training shortly after their official start date. In addition, any outside contractors or utility companies that will be working on any project within the Plan Area boundaries will be required to complete this training prior to engaging in any project work activity. A list of those who have received the training will be maintained by the City. Training should be conducted by a qualified biologist.

In addition, staff are encouraged to attend outside trainings on topics such as native plant management, maintenance in sensitive habitats and understanding wildlife.

## 12.5 Monitoring and Adaptive Management

To determine whether this Plan is successful in meeting its goals with respect to the umbrella species, and that it provides adequate protection of sensitive habitats and species, a City-designated biologist will compile information on an annual basis regarding information indicating the Plan's level of success. Fortunately, a great deal of information on the wildlife of the Plan Area is collected and reported by others, including birders (e.g., via eBird [https://ebird.org] or the South Bay Birds listserv [https://groups.io/g/southbaybirds]), those tracking monarch butterflies (e.g., via Monarch Watch [https://www.monarchwatch.org/] and the Western Monarch Milkweed Mapper [https://www.monarchmilkweedmapper.org/]) or other organizations (e.g., the San Francisco Bay Bird Observatory's tracking of egrets and herons at the Shorebird Way rookery). The City surveys the black skimmer colony on Shoreline Lake and also notes observations of other sensitive species it observes or becomes aware of. With the five umbrella species in mind, the City will also note any observations it has, or becomes aware of, involving these species..

Annually, the City will consider the data described above, as well as information on any changes in habitat extent, distribution, or quality noted by Shoreline personnel; wildlife disturbance or other adverse effects of public access and recreational activities; noteworthy predation events that affected sensitive wildlife; habitat enhancement or other activities performed by the City that year to determine whether there is evidence that the Plan has or has not been successful in protecting Shoreline's sensitive habitats and species that year. They will then consider whether any changes to BMPs, AMMs, procedures, or other elements of this Plan are necessary to improve the success of Plan implementation. For example, if public access or recreational activities in certain areas is creating excessive disturbance of sensitive habitats or species, additional signage or public education may be pursued. Any refinements in these elements will be described in the annual report (described in Section 12.6), implemented in subsequent years, and incorporated into future revisions of the Plan (as described in Section 12.7).

## 12.6 Annual Reporting

By January 31 of each year, the City will prepare a report briefly summarizing Plan implementation and success over the preceding calendar year. The annual report will take into account the monitoring and adaptive management described in Section 12.5. The annual report will contain the following information:

(1) Brief overview of the Shoreline Wildlife Management Plan and its reporting element
(2) Summary of habitat/species enhancement and restoration activities performed during the year, including the following information
    a. Location
    b. Habitat type and/or special-status species targeted by the activity
    c. Dates, methods, and involved parties (including contractors, volunteers, and others)
    d. Acreage/extent of the activity, and the outcome, such as the number of plants installed
(3) Summary of detections of the umbrella species and other special-status species; information on reproductive success of those species; number of individuals and reproductive success of birds using the egret/heron rookery; observations of animals using dispersal corridor enhancement areas; and other information relevant to the evaluation of the Plan's success
(4) Summary of any regulatory changes, such as listing of new species under FESA or CESA, or changes in standard BMPs or AMMs promulgated by the USFWS or CDFW, relevant to species and activities in the Plan Area
(5) Lessons learned; modifications of BMPs, AMMs, procedures, or other elements of the Plan; proposed additions to the Plan; and measures to monitor the outcome of those Plan modifications and additions
(6) Enhancement or restoration projects planned for the coming year

The City will review the report every year and provide updates within the City as needed.

## 12.7 Plan Review and Revision

The Shoreline Wildlife Management Plan is intended to be a dynamic document that accommodates revisions such as habitats, wildlife distribution and abundance, relevant regulations, industry-standard protective measures, and operational changes, to ensure that the Plan adequately conserves the sensitive habitats and wildlife at Shoreline. Given the habitat restoration projects that are proposed in adjacent areas, which may increase the abundance of certain wildlife species close to or in the Plan Area, as well as potential stressors such as climate change and associated sea level rise that may pose new challenges to wildlife management at Shoreline, it will be necessary to review the Plan periodically to determine whether and how it needs to be revised.

The success of the Plan and effectiveness of its measures will be evaluated on an annual basis, as described in Sections 12.5 and 12.6, and any modifications of or additions to elements of the Plan will be identified in annual reports as described in Section 12.6. After the fifth annual report has been prepared per the Plan (i.e., roughly five years or less after Plan adoption), the City will consider whether revision of the Plan is necessary to incorporate the Plan modifications identified in annual reports, any changes in relevant regulations, or other issues. If so, the Plan will be revised at that time. Subsequently, the City will consider Plan revision at decadal intervals. Plan revision may occur more frequently if the City determines that modifications are necessary more quickly or frequently, such as if a species occurring at Shoreline is listed under FESA or CESA and it is determined that the species is not adequately covered by measures targeting the existing umbrella species.

# Section 13. References


Albertson, J. D. 1995. Ecology of the California Clapper Rail in South San Francisco Bay. San Francisco, CA: Unpublished Masters Thesis: San Francisco State University. 199 p.

Beedy, E. C. and B. E. Deuel. 2008. Redhead (*Aythya americana*). Pages 85-90 *in* W.D. Shuford, and T. Gardali, editors. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Berger, L., R. Speare, P. Dazsak, D. E. Green, A. A. Cunningham, C. L. Goggin, R. Slocombe, M. A. Ragan, A. D. Hyatt, K. R. McDonald, H. B. Hines, K. R. Lips, G. Marantelli, and H. Parkes. 1998. Chytridiomycosis causes amphibian mortality associated with population declines in the rain forests of Australia and Central America. Proceedings of the National Academy of Sciences of the United States of America 95: 9031-9036.

Bousman, W. G. 2007a. Common yellowthroat *Geothlypis trichas*. Pages 386-387 *in* W. G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Bousman, W. G. 2007b. Willow Flycatcher *Empidonax traillii*. Pages 510-511 *in* W. G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Bousman, W. G. 2007c. Bank Swallow *Riparia riparia*. Pages 511-512 *in* W. G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Bousman, W. G. 2007d. Yellow warbler *Dendroica petechia*. Pages 376-377 *in* W.G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Bousman, W. G. 2007e. Barn owl *Tyto alba*. Pages 228-229 *in* W.G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Bousman, W. G. 2007f. Mourning dove *Zenaida macroura*. Pages 224-225 *in* W.G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Bousman, W. G. 2007g. Anna's hummingbird *Calypte anna*. Pages 250-251 *in* W.G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Burns, G. 2022. Email communication from San Francisco Bay Bird Observatory biologist Gabbie Burns to S. Rottenborn.

California Department of Fish and Wildlife (CDFW). 2022a. Science: California Biodiversity Initiative. Accessed August 2022 from https://wildlife.ca.gov/Science-Institute/biodiversity.

California Department of Fish and Wildlife (CDFW). 2022b. Biodiversity – The Variety of Life on Earth. Accessed August 2022 from https://wildlife.ca.gov/Biodiversity.

California Invasive Plant Council. 2022. California Invasive Plant Inventory Database. https://www.cal-ipc.org/.

City of Mountain View. 2017. North Bayshore Precise Plan.

City of Mountain View. 2021. Shoreline Lake Improvements Project. Initial Study/Preliminary Mitigated Negative Declaration. March 2021.

[CNPS] California Native Plant Society. 2022. Inventory of Rare and Endangered Plants (online edition, v9-01 1.0). Accessed August 2022 from http://www.cnps.org/inventory.

Cornell Lab of Ornithology. 2022. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Accessed August 2022 from http://www.ebird.org.

Crone, E. E., and C. B. Schultz, C.B. 2021. Resilience or Catastrophe? A possible state change for monarch butterflies in western North America. Ecology Letters. 2021: 24: 1533-1538. https://doi.org/10.1111/ele.13816.

Dingle, H., M. P. Zalucki, W. A. Rochester and T. Armijo- Prewitt. 2005. Distribution of the monarch butterfly, *Danaus plexippus* (L.) (Lepidoptera: Nymphalidae), in western North America. Biological Journal of the Linnean Society 85:491–500.

Dunk, J. R. and R. J. Cooper. 1994. Territory-size regulation in black-shouldered kites. Auk 111(3): 588-595.

Dunk, J. R. 2020. White-tailed Kite (*Elanus leucurus*), version 1.0. *in* Birds of the World. A.F. Poole and F.B. Gill, Editors. Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.whtkit.01. Accessed August 2022.

Eddleman, W. R. and C. J. Conway. 2020. Ridgway's Rail (*Rallus obsoletus*), version 1.0. *in* Birds of the World. P.G. Rodewald, Editor. Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.ridrai1.01. Accessed August 2022.

Evens, J. and G. Page. 1983. The ecology of clapper rail populations at Corte Madera Ecological Preserve with recommendations for management. Report prepared for Marin Audubon Society. 62 pp.

Findley, J. S. 1955. Speciation of the wandering shrew. Occasional Papers of the Museum of Natural History 9:1-68.

Fisher, M. C., T. W. J. Garner, and S. F. Walker. 2009. Global emergence of Batrachochytrium dendrobatidis and amphibian chytridiomycosis in space, time, and host. Annual Review of Microbiology 63:291–310

Fitton, S. D. 2008. Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*) *in* W.D. Shuford and T. Gardali, editors. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Foerster, K. S. 1989. Summary of California Clapper Rail winter populations in the San Francisco Bay National Wildlife Refuge, Nov. 1988 to Jan. 1989. Unpublished report. San Francisco Bay National Wildlife Refuge. Newark, California

Foerster, K. S. and J. E. Takekawa. 1991. San Francisco Bay National Wildlife Refuge predator management plan and final environmental assessment. Newark, CA: U.S. Fish and Wildlife Service.

Foerster, K. S., J. E. Takekawa, and J. D. Albertson. 1990. Breeding density, nesting habitat, and predators of the California Clapper Rail. Fremont, CA: Unpublished Report No. SFBNWR-116400-90-1, San Francisco Bay Wildlife Refuge. 21+ p.

Gardali, T. and J. G. Evens. 2008. San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) *in* W.D. Shuford and T. Gardali, editors. California bird species of special concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Western Field Ornithologists and California Department of Fish and Game.

Gochfeld, M., J. Burger, and K. L. Lefevre. 2020. Black Skimmer (*Rynchops niger*), version 1.0. *in* Birds of the World. S.M. Billerman, Editor. Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.blkski.01. Accessed August 2022.

Graber, D. M. 1996. Status of Terrestrial Vertebrates. In Sierra Nevada Ecosystem Project. Final report to Congress, Chapter 25. Davis, California: Centers for Water and Wildland Resources.

Guzy, M. J. and G. Ritchison. 2020. Common Yellowthroat (*Geothlypis trichas*), version 1.0. *in* Birds of the World (P.G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.comyel.01. Accessed August 2022.

Harvey, T. E. 1988. Breeding biology of the California Clapper Rail in South San Francisco Bay. Transactions of the Western Section of the Wildlife Society. 24:98–104.

[HTH] H. T. Harvey & Associates. 2010. Santa Clara Valley Water District San Francisco Dusky-footed Woodrat Distribution and Status - 2010. Prepared for the Santa Clara Valley Water District.

[HTH] H. T. Harvey & Associates. 2015. Charleston Retention Basin Bridges and Habitat Improvement Project. Prepared for Rachel Grossman, Google Real Estate Property Manager, 1600 Amphitheatre Parkway, Mountain View, CA 94043. December 31, 2014 (revised June 2015).

[HTH] H. T. Harvey & Associates. 2017. Charleston Retention Basin Bridges and Habitat Improvement Project: Biological As-Built Report Phase 1. Prepared for Rachel Colton (formerly Grossman), Google, Inc. 1600 Amphitheatre Parkway, Mountain View, CA 94043. April 11, 2017.

Hindley, H. 2022. How to be a Fox. Bay Nature, January 10, 2022. https://baynature.org/article/how-to-be-a-fox/.

Hunter, J. E., and M. J. Mazurek. 2003. Characteristics of trees used by nesting and roosting Vaux's swifts in northwestern California. Western Birds 34:225-229.

Hunter, J. E. 2008. Vaux's swift (*Chaetura vauxi*) Pages 254-259 *in* W. D. Shuford, and T. Gardali, editors. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Hydroikos Ltd. 2007. Charleston Slough Monitoring Report No. 4. Prepared for the City of Mountain View.

International Dark-Sky Association. 2018. International Dark Sky Park Program Guidelines. June 2018. https://www.darksky.org/wp-content/uploads/bsk-pdf-manager/2021/05/IDSP-Final-May-2021.pdf. Accessed: September 2022.

James, D. G., M. C. Schaefer, K. Krimmer Easton, and A. Carl. 2021. First Population Study on Winter Breeding Monarch Butterflies, Danaus plexippus (Lepidoptera: Nymphalidae) in the Urban South Bay of San Francisco, California. Insects 2021, 12, 946. https://doi.org/10.3390/Insects 12100946.

Josselyn, M., A. Hatch, C. Strong, and F. Nichols. 2004. Impact of invasive species and other nuisance species. Unpublished science synthesis for the Science Team of the South Bay Salt Pond Restoration Project.

Takekawa, J. 1993. The California clapper rail: turning the tide? Tideline (East Bay Regional Park District) 13(2):1-3, 11.

Layne, V. L., R. J. Richmond, and P. Metropulos. 1996. First nesting of black skimmers on San Francisco Bay. Western Birds 27:159-162.

Longcore, J. E., A. P. Pessier and D. K. Nichols. 1999. Batrachochytrium dendrobatidis gen. et sp. nov., a chytrid pathogenic to amphibians. Mycologia 91:219-227.

Lowther, P. E., C. Celada, N. K. Klein, C. C. Rimmer, and D. A. Spector. 1999. Yellow warbler. Pages 32 *in* A. Poole and F. Gill, editors. The Birds of North America. The Birds of North America, Inc., Philadelphia.

Malcolm, S. B. and L. P. Brower. 1986. Selective oviposition by monarch butterflies in a mixed stand of *Asclepias curassavica* L. and *A.* incarnata L. in south Florida. Journal of the Lepidopterists' Society 40(4):255-263.

McCluskey, J., and P. Higgins. 2013. Shoreline Regional Wildlife Area – Maintenance Project Guidelines. Prepared for City of Mountain View Shoreline Division. Fall 2013.

Menges, T. 1998. Common yellowthroat (*Geothlypis trichas*). In The Riparian Bird Conservation Plan: A Strategy for Reversing the Decline of Riparian-associated Birds in California. California Partners in Flight.

Molina, K. C. 2008. Black Skimmer (*Rynchops niger*). Pages 199-204 *in* W.D. Shuford and T. Gardali, editors. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

National Audubon Society. 2022. Important Bird Areas California. Accessed August 2022 from https://www.audubon.org/important-bird-areas/state/california

Nur, N., S. Zack, J. Evans, and T. Gardali. 1997. Tidal marsh birds of the San Francisco Bay region: Status distribution, and conservation of five Category 2 taxa. PRBO Conservation Science final draft report to the United States Geological Survey.

Polite, C. 1990. Black-shouldered Kite *Elanus caeruleus*. In California's Wildlife, Vol II: Birds. D. C. Zeiner, W. F. Laudenslayer Jr, K.E. Mayer, and M. White, Eds. California Department of Fish and Game, California Statewide Wildlife Habitat Relationships System. Pp 120-121.

Rottenborn, S. 2007a. Vaux's swift *Chaetura vauxi*. Pages 244-245 *in* W. G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Rottenborn, S. 2007b. Red-shouldered hawk *Buteo lineatus*. Pages 180-181 *in* W. G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Rottenborn, S. 2007c. Red-tailed hawk *Buteo jamaicensis*. Pages 182-183 *in* W. G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Russell, K. 2016. Creating Habitat for Beneficial Insects. UC Master Gardeners of Santa Clara County. https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=22670. Accessed: September 2022.

San Francisquito Creek Joint Powers Authority (SFCJPA). 2019. SAFER Bay Project. Strategy to Advance Flood Protection, Ecosystems, and Recreation along San Francisco Bay. Public Draft Feasibility Report.

Sanders, S. D. and M. A. Flett. 1989. Montane riparian habitat and willow flycatchers: threats to a sensitive environment and species. IN: Proceedings of the California riparian systems conference: protection, management, and restoration for the 1990's. Sept. 22-24, 1988, Davis, CA. Berkeley, CA: U. S. Forest Service, Pacific Southwest Forest and Range Experiment Station; June 1989. 544 p. GTR-PSW-110.

Schaaf & Wheeler Consulting Civil Engineers (Schaaf & Wheeler). 2016. Palo Alto Flood Basin Hydrology. Corrected Final Report Prepared for Santa Clara Valley Water District. July 2016.

Shuford, W. D. 2008. American White Pelican (*Pelecanus erythrorhynchos*). Pages 130-135 *in* W.D. Shuford, and T. Gardali, editors. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Simons, E. 2022. Raccoons, Skunks, and Foxes Falling Sick in the Bay Area as a Respiratory Virus Spreads. Bay Nature, March 2, 2022. https://baynature.org/2022/03/02/raccoons-skunks-and-foxes-falling-sick-in-the-bay-area-as-a-respiratory-virus-spreads/.

Skonieczny, M. F. and J. R. Dunk. 1997. Hunting synchrony in white-tailed kites. J. Raptor Res. 31(1): 79-81.

Sutter, B. and G. Ritchison. 2005. Effects of grazing on vegetation structure, prey availability, and the reproductive success of Grasshopper Sparrows. J. Field Ornithol. 76: 345-351.

Swiecki, T. 2020. Threats to oaks and other native plants from root-rotting Phytophthora species. Northern California Oak Health Virtual Workshop. April 14–21. North Coast Resource Partnership. Healdsburg, California.

Swiecki, T., and E. Bernhardt. 2014. Phytophthora Species Move from Native Plant Nurseries into Restoration Plantings [presentation]. http://caforestpestcouncil.org/wp-content/uploads/2014/12 /Swiecki.pdf.

Terry, Joseph. U.S. Fish and Wildlife Service. Email communication dated November 2, 2021. Subject: Monarch Research.

Trulio, L., and P. Higgins. 2012. 2012 Shoreline Burrowing Owl Preservation Plan. Prepared for City of Mountain View, Public Works and Community Services Departments. October 1, 2012.

UC Davis Arboretum and Public Garden. 2014. Sustainability Fair 2014 | Plants That Attract Beneficial Insects and Pollinators. https://ccmg.ucanr.edu/files/198037.pdf. Accessed: September 2022.

U.S. Fish and Wildlife Service (USFWS) and California State Coastal Conservancy. 2016. South Bay Salt Pond Restoration Project Final Environmental Impact Statement/Report, Phase 2.

U.S. Fish and Wildlife Service (USFWS). 2022. Dark Skies Initiative. https://www.fws.gov/project/dark-skies-initiative. Accessed: September 2022.

Unitt, P. 2008. Grasshopper sparrow (*Ammodramus savannarum*). Pages 393-399 *in* W.D. Shuford and T. Gardali, editors. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Vickery, P. D. 1996. Grasshopper sparrow (*Ammodramus savannarum*) in A. Poole and F. Gill, editors. The Birds of North America. The Birds of North America, Inc., Philadelphia.

Voyles, J., S. Young, L. Berger, C. Campbell, W. F. Voyles, A. Dinudom, D. Cook, R. Webb, R. A. Alford, L. F. Skerratt, and R. Speare. 2009. Pathogenesis of chytridiomycosis, a cause of catastrophic amphibian declines. Science 326:582-585.

Washington Department of Fish and Wildlife. 2016. Western Pond Turtle Shell Disease in Washington. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwin1926nNb5AhUfHTQIHdp0CO4QFnoECAUQAQ&url=https%3A%2F%2Fwdfw.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2019-03%2Fwestern_pond_turtle_shell_disease_2pager_9august2016.pdf&usg=AOvVaw2dgLm-qug2zBwzaaGktoY6.